The Citrus Industry

Issued Monthly

Representative of every interest
Representing no special interest

Vol. 13, No. 10 TAMPA, FLORIDA, OCTOBER, 1932 15 Cents a Copy

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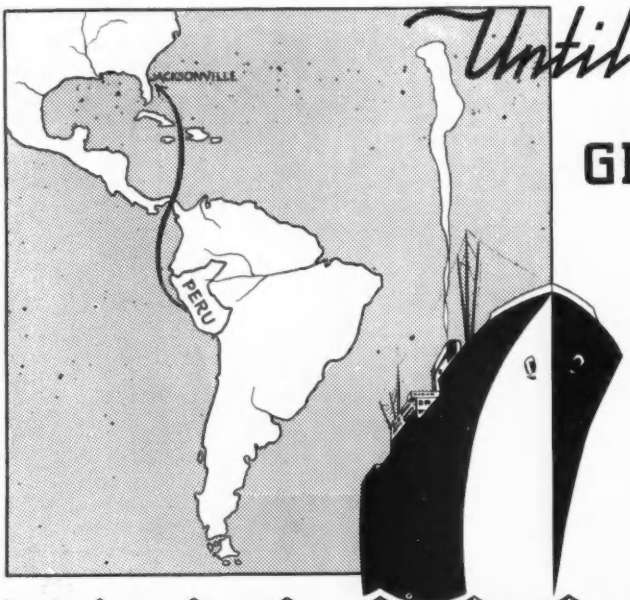

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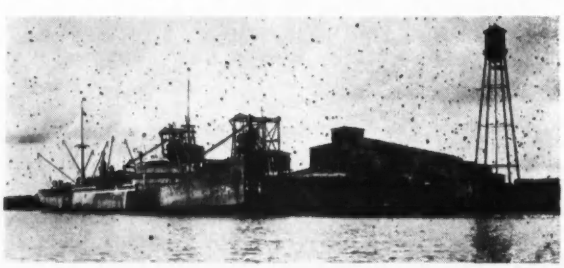

The Dan'sh steamer Leise Maersk unloading a 2000 ton cargo of Genuine Peruvian Guano at the Wilson & Toomer Fertilizer Company's dock at Jacksonville. Another cargo of 3000 tons is expected to arrive in a few weeks.

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The Citrus Industry
EXCLUSIVE SPECIALIZED CITRUS PUBLICATION
Issued Monthly
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Representing no special interest

Vol. 13 TAMPA, FLORIDA, OCTOBER, 1932 No. 10

Florida's Place In Fruit and Vegetable Production

BY J. S. CRUTCHFIELD
PRESIDENT AMERICAN FRUIT GROWERS INC.

The history of the Florida fruit and vegetable industry even during my brief career has proven the truth of Kipling's renowned poem in which he refers to Triumph and Disaster as two imposters. I am not referring to the triumphant boom of 1924, nor the subsequent collapse, nor the recent Mediterranean Fly disaster, nor to the Wall Street collapse of 1929-32 which seriously affected the market for Florida products, but I go further back to 1894 when the citrus industry was destroyed by the freeze of December 28th which simultaneously gave birth to the present great vegetable industry. Florida has triumphed over every disaster and in each instance has emerged with greater vigor and prosperity.

I am neither a prophet nor the son of a prophet, but all of the facts just referred to I state as an eye witness, so that I am constrained to believe in the truth of the Scriptures that "all things work together for the good" (to Florida).

The recent troubles in Florida, aside from the Mediterranean Fly, were not inherent nor necessary troubles, but rather man-made and artificial. The real estate boom and the equally disastrous Wall Street boom were speculative bubbles which outrivalled anything of their kind which the world has ever seen. Such experiences amply justify the query raised by the Texas political orator who, in the heat of a campaign said —"The great question confronting the American people today is: "Air we men or air we monkeys?" and then an enthusiastic supporter cried "We air, we air." On reflection it should be a great consolation for Floridians to know that there is nothing inherently wrong with their chief industry—fruits and vegetables. The fact is the demand for fresh fruits and vegetables is steadily increasing. Scarcely a month passes without some noted scientist discovering some essential vitamin in some of Florida's products. Not only in the United States, but throughout the world there is a steady increase in the proportion of fruits and vegetables in the people's diet.

You may be surprised to know that the July 1st, 1930 bulletin of the U. S. Department of Agriculture shows that the American farmer's income from fruits and vegetables, including nuts, is more than twice as large as that received from all grain and exactly twice as much as the income from the total cotton crop. You will be further interested to know that the only American product that shows a steadily increasing growth in exports is American grown fruit.

During the past decade a shift was going on in international trade. People today consume less cereals and meats and more fruits than they did ten years ago. I will not pause to quote figures to support this statement of change in the habits of consumers of the American people, but I do want to call your attention to what happened to agricultural exports in the period 1919-1931.

The index figures on export trade point out that between 1919 and 1931 the value of all agricultural products exported fell from 145 to 90. During that period export of grains and grain products fell from 272 to 104, and cattle and meat products fell from 287 to 74. At the same time exports of fruits increased from 111 to 337 after making a peak top of 372 in 1929.

Even with these limited figures, it is safe to say that a transfer in agriculture from the grain and meat products has been going on and part of the energy has been translated to the enlargement of fruit growing. The declining exports of the 12-year period 1919-1931 of agricultural products also may mean that certain branches of farming and marketing must work their destinies out in the home market. A man who is in the

(Continued on page 28)

An address before the Orlando Chamber of Commerce on September 20, 1932.

Coloring of Mature Citrus Fruits With Ethlyene Gas

(Continued From Last Month)

ATMOSPHERIC CONDTIONS

Temperature and Humidity

In arriving at the best temperature for coloring fruit, it is first necessary to establish the limits. The temperature can not be held much above 90 degrees F. for long without injuring the flavor of the fruit. It is therefore safer to hold the air temperature below 90 degrees except in the case of cold fruit, which is to be warmed quickly. Fruit colors very slowly below 80 degrees. Generally 90 degrees may be regarded as the maximum and 80 degrees as the minimum temperature that can be used safely. The optimum temperature for coloring grapefruit and seedy oranges appears to be around 85 degrees, and that for tangerines and possibly Satsumas and Navel oranges a few degrees lower.

Experience has shown that few citrus crops react alike to the coloring process since growing conditions have a marked influence on the rate of coloring. Variable weather conditions and variations in the condition of the fruit itself from time to time prevent the adoption of a standardized coloring procedure. In general, however it is suggesteed that if possible the temperature of the fruit should be brought to 80 to 85 degrees F. within a few hours, but at an average rate not exceeding 5 degrees per hour. To accomplish this it is usually necessary to use live steam which also brings up the humidity and prevents wilting of the fruit.

The temperature of fruit being delivered to the coloring room is likely to vary considerably, depending upon the time of the day the fruit was picked and on whether it was grown in sunshine or in shade. In the field boxes the difference in temperature of the fruit may be 15 degrees F. or more; consequently fruit thermometers inserted in only two or three fruits are not likely to give average temperatures. However, the approximate average temperature may be determined by simply closing the room when it is filled with fruit, and starting the blowers (all heaters turned off.) In a few minutes the top air temperature may be regarded as approximately the average temperature of the fruit.

Some damage may be done to the fruit during coloring but this is due not so much to the coloring effect of the ethylene as to the more rapid "aging" which is brought about by the high temperatures used. Fruit begins to age as soon as it is picked; the finer the quality, the more rapidly it will age. The worst feature of the coloring room is that its atmospheric conditions favor the development of stem end decay fungi. On the other hand, the higher temperatures markedly check the blue-old decay that would develop more readily should the fruit be left in a cooler place or in the open air. The principal objective should be to get ahead of decay by moving the fruit from the tree to the market in the shortest time possible, or at least into an environment such as that of a precooling room, a refrigerated car, or a northern climate, old enough to check the growth and spread of decay fungi and to check respiration. Therefore the more time that can be saved in the coloring room the better.

Management of Coloring Rooms During Cold Weather

The coloring temperature should be established quickly. This is specially important during cold weather. In the old type rooms with poor air circulation, the bottom fruit often failed to reach a coloring temperature. Even in some of the modern rooms, if these are poorly constructed, or improperly operated or provided with insufficient air circulation, the bottom fruit requires 24, 36, and some times 48 hours to reach a good coloring temperature although the top fruit usually warms up much faster.

During cold dry weather, the relative humidity of the outside air is very low. Consequently, when it is heated the humidity becomes so low that the fruit loses moisture and becomes wilted. The solution of the difficulty is to use live steam in conjunction with the dry heat from the steam radiator or coils. The use of live steam in this way not only makes it possible to correct the initial deficiency in humidity but forces the temperatures up much faster. The following suggestions are made as a guide to the manipulation of temperature and humidity during cold weather:

1. Raise the top air temperature of the room to 95° F. as rapidly as possible by the use of live steam, which also raises the humidity and usually wets the fruit.
2. If the fruit temperatures are coming up pretty well after two or three hours, reduce the live steam. If not, use live steam liberally a litle longer.
3. If the fruit temperatures can be brought up rapidly without the necessity of using enough live steam to wet the fruit, the steam should be reduced when the relative humidity reaches 92 per cent, or at the first indication that the bottom fruit is becoming wet.
4. It is undesirable to allow the fruit to remain damp longer than the first few hours.
5. The lower fruit must be watched closely. For this reason it is advisable, after getting the temperatures well up with the live steam, to reduce the steam and allow the humidity to drop temporarily until the fruit is dried.
6. After four or five hours, or when the fruit temperature comes up around 80° F., but not before the fruit has been dried off, reduce the air temperature to about 85° and hold.
7. Use live steam to maintain the humidity as high as possible without wetting the bottom fruit, with 80° and 85° as the minimum and maximum limits for fruit temperatures.

After the fruit is warmed to the desired temperature, the humidity can be safely maintained at about 92 per cent, and with such a humidity there is likely to be little or no loss in "packout," (that is, the number of boxes obtained from a given lot of fruit) but if the humidity is maintained much below that point, the "packout" is likely to be considerably reduced because of loss in both size and weight.

Management of Coloring Rooms During Warm Weather

During warm sultry weather, such as sometimes prevails at the begin-

(Continued on page 30.)

THE GROWERS' OWN PAGE

This department is devoted to the growers, for their use in giving expression to their views and a discussion of growers' problems. Any grower is welcome to make use of this department for the discussion of topics of interest. The only requirements are that the articles must be on some subject of general interest, must be reasonably short and must be free from personalities. The editor assumes no responsibility for views expressed, nor does publication imply endorsement of the conclusions presented.

PLANT BOARD REGULATIONS

Gainesville, Florida,
Sept. 24, 1932.

The Citrus Industry,
Tampa, Florida.

Dear Sirs:—

We have noted the letter from Mr. A. V. Lent, of Sorrento, in your September issue, page 14.

As Mr. Lent is quite evidently under a misapprehension as to the requirements of certain State Plant Board regulations, we have written him as follows:

"We note your comment and suggestions regarding the rules and regulations of the State Plant Board with more than usual interest, for such comments and suggestions are always welcome.

"However, you will no doubt be pleased to learn that you have been misinformed as to the Plant Board regulations prohibiting the shipment of kumquat and calamondin trees to other states without defoliation. As a matter of fact, the Plant Board regulations since 1920 have freely permitted the shipment of undefoliated citrus trees to other states, provided such plants were first inspected and certified by the Board's nursery inspector as being apparently free from injuries insect pests and plant diseases. This certification is necessary to insure delivery of the plants at destination, as practically all states require such certification as a condition of entry and delivery. There is, therefore, nothing in the way of your making sale and shipment of an unlimited quantity of kumquat and calamondin trees in foliage to northern buyers if you can find a market for them. In case you wish to make such shipments, we suggest that you get in touch with Mr. Jeff Chaffin, Assistant Nursery Inspector, Tavares, who will be glad to make the necessary inspections and supply you with additional information as to the procedure to be followed.

"However, when it comes to the movement of citrus trees within the state, it is believed by the State Plant Board that, as a general practice, defoliation should be required. Defoliation of citrus nursery stock before being moved has many times demonstrated its value as a wise precaution in preventing the spread of various species of whitefly, of citrus canker, and of other pests which are a considerable handicap to the planter when putting out his young grove. However, provision is made in the Board's rules for movement of undefoliated citrus trees for exhibition and certain other purposes, under special permit from the Nursery Inspector.

"You will doubtless be interested in knowing that the widespread dissemination of citrus canker during the period between 1912 and 1915 was traceable, in large measure, to the unrestricted movement of citrus nursery stock which was undefoliated. Had the defoliation of citrus been required as a condition to movement at the time citrus canker found its way into this state, doubtless losses suffered by growers and large expenditures by state and federal agencies in eradication work would have been, in large measure, prevented.

"Your suggestion that the State Plant Board investigate its own quarantines is entirely pertinent. As a matter of fact this is exactly what the State Plant Board has been doing ever since its creation seventeen years ago. It has always been the Board's policy to repeal or modify quarantines whenever the need for them had passed or whenever improvement in cultural conditions, new methods of insect control, or favorable changes in the situation made the quarantines no longer necessary. It has always been the object of the Board to do everything possible along this line to facilitate trade and business. Among the quarantines which the Board has repealed during the past few years are those relative to scaly bark, cottony-cushion scale, dictyospermum scale, citrus scab, avocado scab, sugar cane, mosiac disease and sweet potato weevil. Others have been modified or improved in such a way as to facilitate trade and commere in the state's horticultural products."

Perhaps other growers are under similar erroneous impressions as to Plant Board rules and policies, hence if consistent and agreeable we would be glad to have you publish this reply in your columns.

Very truly yours,

WILMON NEWELL,
Plant Commissioner.

WN.Mc

SUMMER ORANGES

Hollywood, Florida.
September 24, 1932.

Mr. S. L. Frisbie,
The Citrus Industry,
1123 Florida Avenue,
Tampa, Florida.

My dear Mr. Frisbie:

From time to time we are impressed with not only the Impressiont's views but also the general articles contained in The Citrus Industry. Enthusiastic efforts such as you are constantly displaying can not but help to build for greater achievement in the industry of the State.

Under the article written by D. E. Timmons, "Distribution of Florida Citrus Fruits", there is one point mentioned in the end of the third to the last paragraph in which he mentions, "If Florida can economically produce more summer oranges, she may be able to compete more favorably in the eastern markets".

We realize that this seasonality supply has quite an exacting toll upon Florida's economy in supplying the market.

Inasmuch as our entire efforts have been to encourage more quality summer fruit at a very economic production cost you will realize why we are so interested in this particular project. You too may have additional data which will aid us and the industry in general in attaining greater development along this line.

No doubt you have been noting the activity in Flamingo Groves in rendering additional assistance to the Century of Progress Agricultural phase supplying them with necessary trees to build their orange grove for display in Chicago next year. Photographs were taken of the moving of the first tree from our grove and if you have not already received a copy of this you, no doubt, may be able to procure same from Geo. H. Clements, Director of Promotion, Florida

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Life History and Control Studies for Melanose and Scab of Citrus

BY GEORGE D. RUEHLE

ASSISTANT PLANT PATHOLOGIST CITRUS EXPERIMENT STATION

In this short paper I am going to sketch briefly the more important facts connected with the development of melanose and scab, and then to very briefly outline our control experiments for these two diseases.

Melanose

Melanose is the most important fungous disease of Citrus in Florida. Together with the Phomopsis type of stem-end rot, which is caused by the same organism, it lowers the market value of more citrus fruit than all other parasitis diseases combined.

The fungus causing melanose possesses two distinct spore stages and completes its entire life cycle upon dead citrus wood. The first and most common of these spore stages, known to science as Phomopsis citri, is produced in the dead terminal twigs and branches and other dead wood of the citrus tree, from which the spores ooze out and are washed down to the young leaves, twigs, and fruits, and infect them. The second spore stage, known as Diaporthe citri, was found in decaying citrus wood in contact with the soil, by F. A. Wolf in 1926. Wolf found that the spores of this type are forcibly ejected from the spore sacs, and therefore, it is probable that such spores are air borne for considerable distances. Just how important this type of spore is in the production of melanose to healthy trees or new areas, or to increasing the severity of the disease in infected trees, is undetermined at the present time.

Spores of the fungus are never produced in the melanose blemishes or lesions on leaves, twigs or fruits, and have but rarely been found on fruits decayed with stem-end rot.

Ordinarily, melanose increases progressively as trees become older, and in general, those conditions which promote the accumulation of dead wood favor the development of the disease on the new growth and fruit. Dead wood may be caused by such factors as frosts, drouths, faulty nutrition, insect infestation, diseases organisms, or shading effects in the interior of the tree. Occasionally, twigs of small diameter are not killed outright by these unfavorable factors, but may be so weakened, that the fungus can gain entrance through an injury or old leaf scar and can complete the destruction of the twig by girdling it at the point of entrance. The fungus produces enormous numbers of spores on the dead wood so that a twig only an inch long may be sufficient to produce millions of spores.

Sporulation is much more abundant on recently killed wood than on wood that has been dead for six months or more. However, this does not mean that the older wood may not be infectious. Our experiments have shown that dead wood collected in January, 1931, was still infectious in the spring of 1932, more than one year after the wood was killed. We have found also, that wood artificially inoculated with the fungus in June, 1931, was still highly infectious in May, 1932, eleven months after inoculation.

From cultural and field data, we have found that the spores of the Phomopsis stage begin emerging from the spore sacs in from 21 to 28 days after inoculation, under favorable conditions. Fruiting bodies may be found at any time of the year, but are usually most abundant from the middle of April until about the middle of June. They decrease in numbers during the summer months and by mid-winter are relatively scarce.

A very important factor necessary for the spread of melanose is the occurrence of rains or heavy dews. The spores of the fungus are embedded in a gelatinous-like substance which swells when moist and forces the spores out of the fruiting body in minute tendril-like masses. This spore emergence is plainly visible during rainy periods, but in dry weather is not apparent.

Because of the sticky consistency of the spore tendril, it is doubtful if air currents play much part in the dissemination of this type of spore. Insects and pruning tools very likely spread the spores to some extent, but all evidence indicates that the chief agent of dissemination is precipitation, either in the form of rains or heavy dews.

The fruits of orange and grapefruit are at first very susceptible to infection, and become progressively resistant with increasing size. According to J. R. Winston, oranges develop practical immunity when they reach about 1½ inches in diameter, whereas grapefruit do not become practically immune until they reach about 2½ inches in diameter. Leaves are susceptible to infection from the time they emerge from the bud until they harden, which usually occurs before the leaves take on a dark green color. This hardening process usually takes from two to three weeks average conditions.

Scab

Of the fungous diseases affecting Citrus in Florida, scab is surpassed only by melanose, stem-end rot and possibly blue and green mold decays as a source of loss to the industry. It attacks the leaves, twigs, and fruits of many kinds of Citrus, but the greatest commercial injury is to the grapefruit crop. Scab is not uniformly serious throughout the citrus growing sections of the State, but it may in certain seasons, be the most important disease in some districts. It is also an extremely serious disease of sour orange and rough lemon seedlings in the nursery, frequently reducing the growth by 50%.

The fungus causing scab produces its spores on the surfaces of the characteristic scabby excresences. It over-winters on the infected leaves and twigs, and in the case of certain varieties, also on the fruits. It is extremely unlikely that the fungus is carried over winter on grapefruit set in spring, because of the nearly complete flaking off of the scabby outgrowths by the time the fruit is mature. Numerous attempts to isolate the fungus from mature scabby grapefruit have failed. It has, however, been successfully isolated from mature fruits of Samson tangelo and Villa Franca lemon.

In the spring of the year, the fungus can be readily isolated from scabby leaves that were infected the previous fall, but can be recovered only with difficulty from leaves that

(Continued on page 27)

IMPRESSIONS

By the Impressionist

A gentleman who possibly was contemplating some advertising in this publication commented recently upon the lack of picture-cover on the front. We told him that in as much as THE CITRUS INDUSTRY was not sold at newsstands but circulated solely through subscription there was no need for such expense. The explanation satisfied him.

Then a couple of weeks later another chap brought up the same point. The explanation was wholly satisfactory to him. The incident, however, started us thinking. And shortly responsibility for implanting the idea that lack of a picture-cover constituted a deficiency was traced back to a solicitor briefly in the employ of another publication which recently has made more or less solicitation of the same advertisers who are accustomed to patronize this magazine.

So now we are all set for the next guy who parrots this talk to us. We are going to lay down in front of him, right quick before he can stop us, a copy of Harper's Magazine now eighty-odd years old, price forty cents per copy and admittedly the most successful and very highest type American publication, which never wore a picture-cover any time in its long and useful career; and alongside we will lay down a copy of Liberty, price five cents per copy including the flambouyant cover, which lost to its publishers before they sold it, something like three millions of dollars in five years. Then we are going to get up quietly and tiptoe out.

No, we are not even going to say a word about different types of publications and the different types of readers they try to attract and hold. Our self-restraint is wonderful in the pinches.

C. W. (Joe) Lyons' citrus crop estimate met with general favor in well posted citrus circles upon its appearance. Any citrus crop estimate necessarily is a guess, but Joe's apparently was the best guess to that date. Seemingly it was built upon the most complete and accurate information available so early in the season, and it had been carefully and accurately assembled.

A lot of things may happen later to throw any citrus crop estimate into the discard. Sometimes reasonably good estimates, that is good at the time they are issued, are made ridiculous by unforeseeable later occurrences. For instance rains continue, fruit sizes are smaller than was considered possible. How many know that when a crop sizes up to an average of one size larger than was anticipated when an estimate was made that it can make a difference in the total yield in boxes of nearly ten per cent? Then the outturn always is based upon the number of boxes sent to market; and market prices influence that largely. Given continuing good markets and a lot of low grade fruit will go forward that otherwise would not figure in, or with conditions reversed a lot of fruit is allowed to go to waste with a corresponding reduction in the final shipping figures.

All of which reminds us of the recent attack upon the federal crop estimates of recent years. We are not acquainted with the grower who filed the formal complaint, but if he felt that way about it we are glad he complained. For the formal answer to that complaint should not only set him straight but ought to clarify the thinking of numerous others. To say that the citrus crop estimate habitually had been inflated with the effort of depressing prices to the growers reflects only a lack of information. For the written history shows such estimates of recent years almost invariably below the final shipping figures.

For a period of years we have watched carefully the crop estimates from both Florida and California. It has been interesting to note Florida's tendency to underestimate and California's inclination to overestimate. Seldom has California shipped anything like its estimated crop, and seldom has Florida failed to exceed the official figures. There seems to be a difference in the thinking processes of those who go to make up these two respective industries.

For federal, and other, estimates largely reflect the combined opinion of industry leaders and lesser lights with whom the estimator has had contact. An estimator hardly can be better than those from whom he gathers his material. Estimate as carefully as you can the crop on the trees of your own grove. If you are within ten per cent of correct upon a property of any size then you are a humdinger, even with the advantage of knowing your own property thoroughly. When then is the chance for error with the multiplied factors of hundreds of properties reporting?

And this H. A. Marks, who compiles the federal figures on the Florida citrus crop for the USDA, not only is human but he has to rely wholly upon humans for his assembled data. Based upon a business acquaintance beginning when Mr. Marks first came here, then in capacity of truck crop statistician, we believe he is one of the most painstaking and conscientious attaches of the bureau we have ever encountered. We are entirely confident he would not for a moment lend himself to pulling someone else's chestnuts out of the fire to the extent of manipulating his estimate figures. And history clearly establishes that if anything his estimates have been too conservative, so there is no basis for feeling that he has played the game against the growers, even unwittingly.

Of course, Mr. Marks nor any other estimator, cannot be responsible for garbled versions of their figures or statements which may by accident or otherwise appear in newspapers without his knowledge. Unfortunately we in Florida do have some newspapers which seemingly are wholly lacking in any citrus knowledge, and at time citrus items appearing therein are no more accurate than are other charmingly inaccurate items which they publish upon other Florida subjects. Unfortunately since the collapse of the boom we have not had a central Associated

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The Citrus Industry

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Telephone—Long Beach 3429

THE CITRUS INDUSTRY

To those citrus growers who may be weak in the faith, whose confidence in the ultimate supremacy of their industry in the fruit world, we commend the closing utterance of Mr. C. W. (Joe) Lyons in his comments upon the preliminary estimate of the present season's citrus production in Florida:

> **"In conclusion, will say, that I am a Bull on Florida and particularly the citrus industry, and that the day is not not very far distant when this improvement that I speak of will be brought about for the full benefit of the citrus grower and the state."**

Mr. Lyons is himself a large owner of citrus groves. As the head of a large fertilizer manufacturing concern, his business prosperity depends upon the success of the individual citrus grower. That he is so enthusiastic over the future of the industry is one of the best evidences possible that the industry is basically sound.

Nor is Mr. Lyons alone in his optimistic view of the future of the citrus industry in Florida. Mr. Richard Whitney, president of the New York Board of Trade, is one of the recent buyers of Florida citrus groves and has besides acquired ownership of a number of affiliated interests which are dependent entirely upon the success of the citrus industry. Florida's leading bankers and financiers are almost without exception interested financially in citrus properties and interests affiliated with the citrus industry.

These men have confidence in the future of the industry and are backing their confidence with their means. They are aiding through the Florida Citrus Growers Clearing House Association, the Florida Citrus Exchange and other major citrus agencies in putting the industry on a sound and profitable basis.

True, there are many problems yet to be solved by the citrus interests of Florida, but these problems are being given the best thought of the best minds in the industry, not only in Florida but in Texas and California. Each of these states has its own individual problems which must be solved from within, but in a greater measure they have problems in common which must be solved through closer affiliation and more direct co-operation than has so far been attained.

That the leaders in each of these states now realize the necessity for such co-operation and that they are working together to bring about the closer touch essential to the solution of their common problems, is one of the bright spots in the present situation.

The citrus industry has in great measure at least passed through the speculative stage and is now being placed upon a sound business basis, with the best minds in the industry working together toward a common end—a reasonable measure of profit for the owner of citrus groves.

THE MARKET OUTLOOK

With an estimated crop of between 19,000,000 and 20,000,000 boxes of citrus fruit from the groves of Florida this season, with the grapefruit crop of Texas greatly reduced, and with only a normal yield anticipated from California groves, the citrus grower under normal conditions might look forward to largely increased prices for his product. This is particularly true in view of the fact that much is expected in the way of increased demand from the projected advertising campaign for Florida citrus fruits.

On the other hand, however, we are faced with a decreased purchasing power on the part of the average buyer of citrus fruits. The return of prosperity is still "around the corner," and with no immediate prospect of a return to normal buying power. This condition will operate to counteract the effect of the lessened production, and makes all the more imperative that steps be taken to increase the demand through every possible channel.

The major portion of the crop is late, and up to this time there has been but little indication of any effort to rush unripe fruit to the markets of the North. If this condition can be maintained we should look forward to a fairly active demand for early shipments, unhindered by the handicap so common in recent years of the bad effect created by the shipment of unfit fruit.

As The Citrus Industry views the situation, we should look forward to receiving fair, but not fancy, prices for fruit of good quality and appearance if an equable distribution of shipments to the various markets can be maintained.

It is cheaper to buy fertilizers and sprays than to pay freight on fruit of poor quality and appearance which will not pay transportation costs when delivered to market.

Don't overlook the importance of the fall fertilization program. Fall fertilization will not only help put your trees through the winter in good condition, but will have a direct influence upon next season's bloom.

CITRUS COMMENTS

—BY—

Charles D. Kime, Orlando, Florida

This department is devoted to furthering horticultural interests of Florida. Letters of inquiry, discussion or criticism will be welcomed.

Fall Fertilizing

Heavily loaded trees going into the winter will not have the vitality to repeat their crop the succeeding year unless they are carefully checked for the following conditions.

1. There must be a plentiful supply of plant food materials in the soil. (In this connection any material whether chemical or organic that the plant needs as a part of its supply may be considered a food since it is an aid to crop production.)
2. The materials supplied must have an availability suitable to the individual grove on which they are applied. Otherwise their use or absorption will be too limited.
3. If the "fertilizer" is not there, it must be supplied ahead of seriously dry weather for best results.

If we will keep in mind that the fall maturity period for both fruit and leaves is the period of heaviest drain on tree vitality and on soil reserves we can understand the necessity of a generous supply. Maturing a crop consists of adding a series of highly complex compounds to the fruit juices so that the fruit will have flavor and quality. It is the final and supreme effort of the tree to propagate itself. It is bound to be accompanied by an active use of every food material in the soil necssary to fruit maturity and to tree storage for winter use. This drain comes at the end of the rainy period at which time reserves will be at their lowest point.

Heavy feeding at this time of the year is important from a number of other angles as well.

The period from about October to June, often a full eight months, is a period of dry weather feeding. During a part of that time we have cold weather as well. Dry weather and dry cold weather bring about very different feeding conditions. Such conditions are serious in marginal groves, i. e., those with depleted fertilizer reserves in the soil. If we assume that 80% of the groves are running short on plant food at this time but that they still had a sufficient amount to keep the grove looking good during wet weather; then suddenly as has actually happened we run into a period of dry weather which may extend clear through the winter, we can understand their inability to maintain color and a good tree condition.

The whole remaining quantity of fertilizer material, soil conversion processes are all slowing up under the effect of drying and will be still further affected by cold weather. With the decrease in water supply the tree is forced into an extended period of lessened absorption. The material which it can still absorb is itself depleted in many essential elements, and was already growing less and less effective. The most apparent deficiency is always nitrogen as tree color depends on its presence. Other starvation symptoms generally show up the next year in less crop, no crop, dead wood, etc.

Dry weather therefore demands a soil rich in food materials that are either available or easily converted into available forms. In this way the period of absorption is extended and tree starvation avoided as long as possible.

Tree resistance is built up in a number of ways through complete fertilizing.

A well fed tree like a well fed man is capable of withstanding serious "wilting" for a long time. It is capable of withstanding scale and disease attacks to better advantage. It is capable of making a quick recovery when conditions change for the better.

Cold resistance is built up in the "well fed" tree. There is less injury from freezing temperatures in concentrated sap solutions because the freezing point is lower. Estimates from two to five degrees have been made in this respect.

During the summer, soil organisms are very active. Rains are more plentiful. The soil activity is high and conversion of soil materials is at its highest point. If rains are heavy, soluble materials would wash down and out through the subsoil water. The trees and cover crops use up materials rapidly, more so than at any other time. Out of what is left nature strikes a balance and makes it unfavorable or favorable depending on what additions we may make to bring up the deficiencies. Fall finds all of our work of the year at its lowest ebb. Natures period of greatest activity is finished and in a manner of speaking she calls a new deal and starts all over. It seems very sensible that we should supply her with materials to work on at such a time in liberal quantities.

The danger of **excessive soil concentrations** is often present in our minds but not in the soil. It can and occasionally does become a factor but not so often as other very simple causes of trouble appear to plague us. **"Buffer effect,"** is a term used a safety allowance of which we make frequent use without knowing it. Let us see how this works. We all know that carbolic acid burns terribly when used full strength therefore whenever it is used as a part of our medicines for either internal or external use it is diluted. Avoiding technical distinctions we "buffer" the carbolic acid with the addition of other materials until instead of being dangerous to use it becomes a very valuable aid to our bodily health. Simply stated, each material we use in citrus work will buffer the other and alter its injurious action into a favorable action. The limit to such combinations of otherwise injurious materials is surprisingly high. We do not have to worry about the total concentration of a mixed supply of plant foods so long as each is kept below a pretty definite percent of the total soil contents.

Citrus can be grown in a water solution, to considerable size. When so grown the plant foods we commonly add to the soil are dissolved in a solution and added directly to the water in which the seedling is being grown. In such a solution the buffer effect is clearly shown as when it is

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Incompetence Preferred

By RALPH E. BRAY
EDITOR THE MISSION TIMES

To the orgy of governmental meddling in general and Farm Board incompetence in particular is now added another glaring instance of how the paternal fathers in Washington "save" agriulture through the munificient method of aiding old line co-operatives.

Nearly three years ago the Texas Citrus Fruit Growers Exchange, dominant co-operative organization of the lower Rio Grande Valley feeling the need for added facilities to keep abreast of the great increase in tonnage in the citrus industry, made application to the Farm Board for a facilities loan of a million dollars out of the huge revolving fund appropriated by Congress. After almost endless delay and procrastination the government finally agreed to look into the matter and Mr. C. C . Teague, at that time member of the board in charge of fruits and vegetables made a trip to the Valley and submitted his plan under which citrus growers of the Valley would be eligible for federal aid. That was about thirteen months after application was made for funds.

Despite the fact that the Texas Citrus Fruit Growers Exchange was the co-operative seeking aid, the Board through Mr. Teague, ignored the Exchange and set forth a fantastic plan taking in two small competing co-operatives, each with one plant and with a combined membership of hardly a third of the Exchange, and despite the fact that the packing facilities at that time were more than twice the combined facilities of the other associations, gave the two small associations equal consideration with the dominant one. An illogical and unworkable set-up was suggested by Mr. Teague, who is President of the California Citrus Exchange, and the upshot of the whole business was that no funds were forthcoming and the co-operative movement in the Valley was set back at least two years, with a consequent serious injury to the citrus industry of the Lower Rio Grande Valley. On his return to Washington Mr. Teague released an article to the Associated Press in which he severely criticised people of the Valley for planting such extensive acreages of citrus and said there was an overproduction of such fruits. In his assumed province of arbiter of citrus producers of America Mr. Teague's statement caused the thousands interested in the Texas citrus industry to wince in pain.

Farm Board Appealed To

The Farm Board has been appealed to by citrus growers of the Rio Grande Valley for aid and guidance, and what did it receive right at that stage in its development when aid and guidance from a great governmental agency could have been invaluable? The agency making the application and after nearly a year and a half of hopeful waiting was not only denied deserving aid-but the usual forces that are always at work trying to tear down a successful and outstanding institution, were given encouragement; encouragement that was to live and bear fruit.

Instead of coming to the aid of the citrus growers of the Rio Grande Valley at a time when it could have built up a highly successful and far-reaching co-operative movement, because it was the psychological time for such a development and conditions were ripe for it, the Farm Board complicated the situation to a great extent and harassed by its policy of red tape and theory the successful co-operative in the field, and thus laid the groundwork for dissatisfaction and indecision among the growers. Although the co-operative movement was going ahead and was perhaps more successful in its functioning, through the work of the Texas Citrus Fruit Growers Exhange a stock type of co-operative, which was showing a remarkable growth and had the promise of full command of the co-operative situation the seeds of dissention were sown by Mr. Teague, and shortly after his visit the forces of disintegration were set in motion.

Fear of Business Principles

The trouble with the Farm Board's policy seems to have been in Mr. Teague's fear of business principles as applied to co-operative effort. Because the co-operative organization headed by the Californian had been relatively successful up to that time, Mr. Teague presumed that no other type of co-operative could be a success. He could not understand that there were great differences in conditions in his state and in Texas. He refused to recognize the fact that the citrus industry of Texas was compactly situated in two counties and that growers from one end of the area to the other could meet at a central point within an hour or so, contrasted to his industry being scattered through sixty or more counties, hundreds of miles apart. He apparently could not see that co-operation of farmers is just like co-operation of bankers, or any other business men and that the same principles of corporate control will apply and make for success.

Mr. Teague, speaking for the Farm Board refused to recognize on that memorable belated trip to stricken South Texas citrus growers that, although in financial distress, they had the brains and initiative to work out a plan of co-operative action fitted to their conditions, and had already built up a successful co-operative that was showing a highly healthy growth and had already accumulated sufficient resources to build four of the most modern fruit packing plants in the South, and had already overshadowed in successful operation any other co-operative in the United States of the same age. Mr. Teague, with one great gesture, was perfectly willing to sweep all that all that aside, and what is the result?

Instad of extending deserving aid to the co-operative that applied for it, and which on every equable consideration was entitled to it, planted seeds of dissension among citrus growers, which took root and early this year brought forth the usual opposition movement that has cursed every agricultural community and set growers at each others throats, and, in the final analysis, supplanted competition where co-operation should have been.

The agitation was started among the growers for a "Valley wide co-operative," certainly, under the proper auspices, a worthwhile undertaking. And here again Mr. Teague entered the equation. His arguments against a business-type or centralized organization, which under the circumstances was the logical thing (the Farm Board never seems to do the logical thing) were used to break down the morale of the established co-operative (the Texas Citrus Fruit Growers Exchange) which had several times the tonnage and member-

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BLUE GOOSE NEWS

Monthly News of American Fruit Growers Inc. *Edited by The Growers Service Department*

STATEWIDE MEET OF AFG MEN IN ORLANDO

Orlando was the scene on September 20 of a statewide gathering of executives and managers of the Florida Division of the American Fruit Growers Inc. Participating were the managers of the approximately forty packing houses maintained in Florida together with Orlando office executives and the president and senior vice-president of the national organization.

It was an all day session held in the public room of the Angebilt hotel, where during noon intermission luncheon was served in a private dining room to some sixty persons. C. R. Pilkington, Orlando, presided as chairman of the meeting and contributed no little to its success by the manner in which he handled the various discussions.

A feature of the morning session was a talk by J. S. Crutchfield, Pittsburgh, president of the American Fruit Growers Inc. He outlined the remarkable progress which the organization has made during the past twelve years; and forecasted that the coming ten years are, in his opinion, due to be better by far for the agricultural interests of the country than the past ten years have been. At noon Mr. Crutchfield absented himself in order to speak before the Orlando chamber of commerce, but otherwise remained an interested listener and participant throughout the day.

R. B. Woolfolk, Orlando, senior vice-president of the national organization, forecasted a much better season for Florida citrus growers this year than was had last winter. He also explained the proposed commodity advertising campaign for Florida citrus fruit this coming season; and anticipated large benefits to the Florida industry therefrom, likewise stating there will be no reduction in the AFG's own advertising of its Blue Goose trademarked fruit, which it customarily carries on. He said the commodity campaign will go largely to daily newspapers, on the advice of the foremost advertising experts in

(Continued on page 2.)

Be sure to read "ON ADVERTISING" which appears on the following page

CRUTCHFIELD SPEAKS TO ORLANDO CHAMBER

In his official capacity as the member representing the agricultural industry upon the board of directors of the United States Chamber of Commerce J. S. Crutchfield, Pittburgh, president of the American Fruit Growers Inc., on September 20 addressed the weekly meeting of members of the Orlando chamber of commerce. His talk simultaneously was broadcast over station WDBO at Orlando.

He spoke upon Florida's Place In Fruit and Vegetable Production, and his talk was well received by the large audience in attendance. It has since occasioned considerable comment.

The occasions upon which Mr. Crutchfield appears before the Orlando chamber of commerce are apt to partake more largely of the nature of a homecoming reception than official or other visits. At such times S. J. Sligh, A. C. Marshall and other old time Orlandoans are accustomed to appear upon the platform in company with him; and there is invariable reminiscence of their younger days and the younger days of Orlando, when J. S. Crutchfield made his debut into the fruit and vegetable business as a quite young but very ambitious employee of the old Nelson Brothers citrus packing house at nearby Oviedo.

LATE MATURITY WILL SLOW CROP MOVEMENT

By C. N. Williams, Salesmanager

The optimism expressed a month ago as to the outlook for Florida grapefruit of good quality is enlarged by the recent practical destruction of the Porto Rican crop by the September hurricane. Best estimates put the grapefruit crop loss there at from 90 to 95 per cent. Porto Rico thus becomes a neglible factor for this season.

The short crop of grapefruit in Texas also is favorable to Florida's prospects. It is estimated at from 2,000 to 2,500 cars, while last season's grapefruit shipments from there, by rail alone, amounted to 5,300 carloads. Texas further will be handicapped by quarantine regulations to some extent.

With Florida's own much shorter grapefruit crop, and the shortage of competitive offerings from other sections, the grapefruit outlook is good for fruit of desirable quality.

There is a definite shortage of both early grapefruit and oranges in Florida, indications continuing that the real crop movement hardly can get under way before December 1, with likelihood that the shipping season may be extended considerably later than is usual.

Alabama's Satsuma yield is reported slightly heavier than last season, but with the lateness of Florida oranges this is apt to be minimized in possible effect upon the markets. Accurate figures from California are not available, but it is reported that in both the Northern and the Southern California districts the crop will be considerably shorter than last season. California's left over Valencias are due to be wholly out of the way before Florida can move any quantity of oranges.

Gradually bettering general conditions over the country, and the growing feeling that oranges today rate as a necessity and not as a luxury, add to the grounds for feeling that Florida will be able to market this coming crop satisfactorily.

Adv.

BLUE GOOSE
NEWS

OF INTEREST to the citrus growers of Florida, each month, contained in four pages of paid advertising from the

AMERICAN FRUIT GROWERS INC.
Florida Division
Sixth Floor, State Bank Bldg.
ORLANDO, FLORIDA

ON ADVERTISING

The intention of the American Fruit Growers Inc. to continue advertising of the Blue Goose trademark, and special dealer service for fruit going to market thus distinguished, right along as an accompaniment of the commodity advertising program which has been developed to advertise all Florida-grown oranges, grapefruit and tangerines will require no explanation to those experienced in marketing and advertising.

The difference between commodity advertising and brand or trademark advertising is very great. It is largely a difference of function, so that comparisons of their relative effectiveness are from a practical standpoint impossible.

Until the recent efforts to create and maintain joint advertising campaigns for Florida citrus fruits it is history that theretofore the majority of the fruit shipped from Florida each season bore no part of the cost of advertising or other effort to broaden and intensify the consumer demand for these fruits. This was manifestly improper, if consideration is given to the constantly increasing production and the absolute need for stimualting consumption.

The proposed, and now practically arranged, joint advertising campaign marks the peak of the effort to date to enlist the greatest possible number of producers in a combined effort on behalf of their joint production. That it should take the form of advertising Florida oranges, grapefruit and tangerines as a whole is only logical.

From the outset the American Fruit Growers Inc. has favored such an undertaking, and has given its aid and influence to its consummation. It has done so because of the sincere, and carefully considered, belief that it will be mutually beneficial to all those Florida growers whose participation will be involved, and beneficial to the Florida industry.

But the American Fruit Growers Inc. has never contemplated abandoning its established policy of special advertising to identify and stimulate the sale of oranges, grapefruit and tangerines distinguished by the Blue Goose trademark. To do so would be to abandon a fundamental in its program to render superior service to those growers whose products it markets.

Today the Blue Goose trademark is the best known identifying mark for high quality fruits and vegetables not only in the United States but in the world. For that Blue Goose trademark is just as well known and just as popular in London and other centers abroad as it is in New York or Nashville. Recently three great national magazines conducted a national survey which developed the knowledge and preferences of many thousands of consumers in the United States in the matter of advertised brands or trademarks used in connection with fresh fruits and vegetables, and Blue Goose led all the rest. Taken by specific commodities the Blue Goose trademark on oranges was a close second in favor to the long and widely advertised Sunkist. On grapefruit the Blue Goose trademark was far and ahead first in public knowledge and favor.

That Blue Goose trademark is truly the biggest marketing asset of each of the thousands of producers whose quality products it distinguishes. It could not be neglected without hazarding that prestige from which they profit, a prestige which constantly grows greater with the passing of years and with the further enlargment of the marketing operations of this organization.

And it is in no way needful to let up in effort to support the Blue Goose trademark in order to support heartily commodity advertising of Florida citrus fruits. As earlier pointed out the functions of commodity advertising and the functions of brand or trademark advertising differ considerably. If a parallel for the present situation be desired, it can be found in the paint and varnish field. The Save The Surface and the Paint-Up campaigns constitute the joint commodity effort of the principal manufacturers, while their individual brand advertising continues to command consumer attention for the distinguishing characteristics and easy identification of the various products of the individual makers. There is nothing competitive between these joint commodity campaigns and these individual brand campaigns in the paint and varnish field, and no basis upon which they may be compared to the disparagement of one or the other. The same will be true as affecting the advertising of Florida citrus fruits.

Also it may be borne in mind that inasmuch as each of these advertising programs is supplemental to the other each will contribute to the effectiveness and value of the other, so the procedure proposed not only is not wasteful but is a thrifty investment of the growers on behalf of the better distribution and sale of their joint and their individual production.

—R. B. Woolfolk.

Adv.

STATEWIDE MEET OF AFG MEN IN ORLANDO

(Continued from page 1.)

the country. Some radio broadcasting will be done. He is a member of the state committee of citrus growers and shippers which will have charge of this joint Florida citrus commodity advertising.

C. N. Williams, Orlando, citrus salesmanager, at whose call the meeting was held, told of crop conditions in the various citrus producing areas, and of other fruit crops and factors competitively affecting the citrus markets. He was distinctly optimistic concerning the marketing outlook for this coming season's Florida citrus crop, which then was just beginning to move.

Talks were also made by T. S. Kirby, Fort Pierce; J. W. Parker, Walsingham; S. D. Gaines, Wabasso; W. M. Reck, W. M. Scott, Allan W. Wilson and C. R. Pilkington, Orlando. In addition there were technical discussions affecting the management of citrus packing houses, and of ways and means for rendering better service to the growers and at the same time giving the buying trade what it is known to demand.

Among those present were: J. S. Crutchfield, Pittsburgh; A. W. Wilson, S. Z. White, J. R. Crenshaw, J. A. Byington, C. N. Williams, C. R. Pilkington, R. B. Woolfolk, G. D. Wing, W. M. Scott, C. W. Rodgers,

(Continued on page 4)

Photographic reproduction of lithographed (originals in colors) Blue Goose dealer helps for use in Blue Goose retailers' service during the coming shipping season. Read "On Advertising" on preceding page.

Adv.

The world's best known distinguishing mark for fresh fruits and vegetables of quality.

American Fruit Growers Inc.

Florida Division Orlando, Florida

STATE WIDE MEET OF AFG MEN IN ORLANDO

(Conitnued from page 2.)

Orlando; Albin Crutchfield, N. H. Harper, C. H. Dentler, DeLand; S. D. Gaines, N. B. Ryall, Wabasso; J. W. Parker, O. N. McMullen, Largo; Earl Hunter, Ocoee; F. B. Smith, C. L. Bray, Arcadia; S. E. Roberts, J. E. Powell, W. M. Reck, Avon Park; T. H. Maxwell, B. B. Scarborough, West Frostproof; T. S. Kirby, Fort Pierce; R. J. Flynn, Odessa; Alex Warren, jr., J. H. Whidden, Clay Binion, Winter Haven; W. J. Merrill, Lakeland; Paul Rogers, B. G. Anderson, Maitland; W. G. Chilton, Mims; G. B. Hurlburt, W. T. Bland, Lake Jem; Ervin Springstead, W. W. Hubbell, Palmetto; O. F. May, Mascotte; H. S. Parkinson, Alva; C. N. Leach, R. C. Evans, D. B. Rhea, Haines City; E. B. Walling, E. B. Lytle, L. C. Crandall, Weirsdale; Walter Mathews, Grays Wharf; J. T. Helms, jr., Arthur Gunn, Valrico.

BLAND HEADS NEW HOUSE OPENING AT LAKE JEM

W. T. Bland well known citrus grower of the Lake Jem section is president of a new organization which will operate a packing house at Lake Jem this season, serving the growers of that section and in the adjacent Northwest corner of Orange County, its pack being sold in the markets through the American Fruit Growers Inc.

In addition to his grove holdings Mr. Bland also is the owner of the Blandford Nurseries at Lake Jem, and is a director of the First National Bank & Trust Co. in Orlando.

Other officers of the new organization are C. N. Williams, vice-president; R. B. Woolfolk, secretary and treasurer; G. D. Wing assistant secretary and treasurer.

Active management of the packing house is under G. B. Hurlburt one of the ablest and most experienced in the state, and well known as former manager of the Maitland AFG packing house for several years.

W. W. HUBBELL NOW IN CHARGE AT PALMETTO

W. W. Hubbell, well known to the growers of the Manatee country is now in charge of the operations of the American Fruit Growers Inc. at Palmetto, and promises to put the famous Blue Goose to the fore front of citrus operations there as in other citrus sections of Florida.

As a city commissioner Mr. Hubbell is thoroughly known to the people of Palmetto and as Representative elect to the forthcoming Legislature is equally known to the citizens of Manatee County.

A grower himself, and viewing operations from a grower's angle, he brings to his task an unusual business ability and the widely held esteem of his fellow citizens. Ervin Springstead, associated with AFG operations at Palmetto since their inception will continue to be connected there, and will supplement Mr. Hubbell's efforts to render a highly superior service in connection with Blue Goose fruit which goes to the markets from the Land of Manatee.

G. B. HURLBURT REJOINS AFG FLORIDA RANKS

After an absence of six years during which he engaged in another line of business G. B. Hurlburt, more familiarly known as "Crip" Hurlbut to the growers of the central part of the citrus belt, has rejoined the Florida Division of the American Fruit Growers Inc. at Lake Jem.

Adv.

INCOMPETENCE PREFERRED

(Continued from page 12.)

ships of the other co-operatives combined, and which furnished the ideal ground plan for a Valley-wide organization, and an intensive campaign was put on among growers in which the usual reckless organization statements were made and the usual impossible promises held forth. The Farm Board figured in all of this and the farmers were told that they were going to be given "cheap money" and the benefit of the "superior marketing brains and facilities of the government."

Farmers Fell For It

The farmers fell for it. Smooth-tongued speakers worked the trick and when noses were counted early in the summer after the drive closed the new organization put out the statement that it had "eighty-seven and one-half per cent of the tonnage" in the entire Valley signed up. The Farm Board promise of "cheap money," "packing plants," "selling organization," etc., had proved a winner. The organizers, all experienced men — in the law or colonization work — but not in citrus marketing or co-operative effort, then started on the second lap of the movement — the business set-up, and here is where signs of trouble began to appear. It was seen that some of the promises made were a little too lavish, but the Farm Board was in the background with its "cheap money" so all was well.

The only string which apparently the Farm Board had held over the new movement was that growers must first get three-fourths of the actual tonnage before the money was to be laid on the barrel-head, so in their anxiety to put the program across the organizers put out contracts among the growers that were not binding unless at least seventy-five per cent of the tonnage was secured. But to make their case with the Farm Board a good one, when the drive was over the organization leaders sent word to Washington that they had been very successful and that their actual tonnage was eighty-seven and one-half (don't overlook the half) per cent. No time was lost in sending one of the leaders to Washington at expense of the growers to "Tap" the great governmental godfather, the Farm Board, for the do. But while this leader was away, trouble broke out among the growers. Many began to lose their enthusiasm when they saw that jobs were not forthcoming. One of the co-operatives, (with one plant) which had given its support to the movement, called a halt when it was learned that an outside sales organization was to be employed, and when it saw its organization was threatened by manifold impracticalities. This group, the second largest co-operative in the Valley up to this time withdrew entirely and is now proceeding with its separate organization.

Took Word of Leaders

The possibility that the new organization did not have the needed seventy-five per cent of the tonnage never entered the minds of the Farm Board's fiscal agents. They apparently took the words of the leaders of the new movement on their face value. The question of whether funds were needed by the growers of the Valley did not enter the proposition. The only thing that mattered was that the new group had followed the dictates of Mr. Teague and fashioned their set-up on the same plan that has been followed with little success in Florida and relative success, up to the arrival of the depression in California. That was the big consideration it seems; that no co-operative had to be of ancient vintage with all of the imperfections that characterize farmer groups, and could not become modernized and fashioned along sound, progressive business lines.

But let us look at the picture today. Instead of having "eighty-seven and one-half per cent" of the bearing acreage in the Valley, and with the consequent problem of packing and selling the same ratio of fruit, the new organization will ship hardly a third of the fruit, leaders of the new co-operative and the Farm Board to the contrary, notwithstanding. Instead of consolidating the growers of the Valley behind a Valley-wide co-operative movement suited to the needs of the Valley, we have the dismal picture of another grower organization, with no experience behind it; with officers with practically no practical experience, with limited facilities, with no home sales organization, and with a dangerous spirit of rivalry existing toward the Exchange, which has naturally suffered from the propaganda of the new movement, while a third co-operative is in the picture. Instead of putting a half a hundred or more small cash buyers out of the marketing scene, they remain and are as active as ever.

"Cheap Money"

But did the Farm Board take the trouble to find out whether citrus growers of the Valley needed "cheap money"? It did not. It had the money on hand and the new organization had qualified under the provisions of the "Capper Volstead Act" so why should it not be given a slice of the dear people's money? Although the established Exchange had eight modern plants with ample facilities to take care of all of the fruit in the Valley, which had been cut more than fifty per cent in volume by a heavy freeze, that did not matter. It made no difference that the Exchange had offered growers its packing failities at cost or less and on the same basis as its own mem-enjoy; the new association was not interested in that. It mattered not the Exchange had offered the benefit of its selling organization—a Valley organization—to the new group. The fact that there were ten times as many packing plants in the section than were needed, and despite the fact that every packing plant sooner or later was paid for by the growers, the Farm Board in its infinite wisdom was perfectly willing to appropriate funds for more packing facilities, because a foster child had been born.

And what is the result? The co-operative movement is hanging in the balance with all the odds against it. The situation is eminently worse than had the Farm Board never been heard of. Growers under the lure of "cheap money" have done things they are already regretting and will more as time goes one, while those faithful believers in co-operation who have had the pertancity to stand with their organizations—the two long established co-operative groups, which had worked long for a Valley-wide set-up that could control the tonnage and that was suited to conditions in the Valley, must carry on with adversity in the form of the Federal Farm board, bearing heavily upon them.

SOWING CROTALARIA SEED THIS FALL WILL SAVE SPRING LABOR

By Spuds Johnson

Cutting corners to save expenses seems to be a rather popular pastime with both business men and farmers these days. Reduced incomes have made such action necessary. And many of us have surprised ourselves with the number of places we have found where we could cut corners in case of necessity. Another thing we have learned is that we often save not only expenses but also labor and time, and accomplish the same results as formerly.

Gus Weeks, my neighbor, recently

(Continued on Page 25)

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GENUINE U

THIS YEAR, Nitrate Agencies Company brings you the same high-grade South American Bird Guano . . . Nature's Finest Fertilizer . . . as in the past. An old friend with a new MIDDLE name. Genuine HUMBOLDT Guano.

For 70 years Nitrate Agencies and its affiliates have imported tremendous quantities of a Bird Guano produced on the small islands of the Humboldt Current. This unusual ocean current parallels the Pacific coast of South America for thousands of miles and is similar in many respects to the well known Gulf Stream, but instead of being a warm current, it is cold . . . a fact that accounts for the rainless climate of these islands.

The Guano formerly imported by us came from a group of islands in the Humboldt Current directly off the coast of Peru. Quite naturally, it was known as Peruvian Guano. It had definite characteristics which readily identified it and made it different from any guano produced outside of the Humboldt Current.

During recent years the production of Guano on the islands in the Humboldt Current lying south of the Peruvian Group has increased annually. This has provided a new source of supply of the same material.

In keeping with its long-established policy of making this wonderful fertilizer available to Florida growers at lower prices each year, Nitrate Agencies has arranged to obtain its supply from this new source. Our own inspectors report this Guano to be the finest we have ever offered.

Genuine HUMBOLDT Guano is the same high-grade Bird Guano that Florida's most successful growers have used for years. It comes from the same chain of Bird Islands of the Humboldt Current off the west coast of South America. It is produced by the same fish-eating Guano Birds in the same way . . . fish converted into Nature's Finest Fertilizer, the most available of all organics. It is exactly the same bad-smelling, good-for-crops Guano with a new MIDDLE name . . . Genuine HUMBOLDT Guano.

NITRATE AGENCIES COMPANY

1401-1407 LYNCH BUILDING

JACKSONVILLE - - FLORIDA

D FRIEND
N *Middle* NAME
EUMBOLDT GUANO

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SERVICE
.....
TO YOU

Each year, for the last five years, Nitrate Agencies Company has been able to reduce the price of Guano. This year, with control of its own independent source of supply this company is able to offer Genuine HUMBOLDT Guano at still lower prices.

And with this reduction you still have the privilege of specifying just what percentage of nitrogen (up to the full ammonia content of the analyses) you want derived from Genuine HUMBOLDT Guano in any regular NACONITE or NACO Brand Fertilizer—at no extra cost.

Another new name for an old friend. This is the formula group formerly known as Peruvianite. Nothing has been changed but the name. NACONITE, like other Naco Brand fertilizers, contains generous amounts of Genuine HUMBOLDT Guano. It is made up in fifteen different analyses, one of which is especially suited to year-round use for citrus and truck crops.

Further, you have the option of additional Genuine HUMBOLDT Guano up to double the standard amount in NACONITE formulas if you want it.

Genuine HUMBOLDT Guano is more than just so much plant food. It is a natural organic containing all of the required food elements including several rare ones necessary for the full health of plants. It provides controlled feeding by releasing part of its plant-food quickly, part of it slowly, for continued nourishment of trees.

It permanently conditions your soil because it contains its own beneficial nitrifying bacteria which release locked-up nutriment already present in the soil.

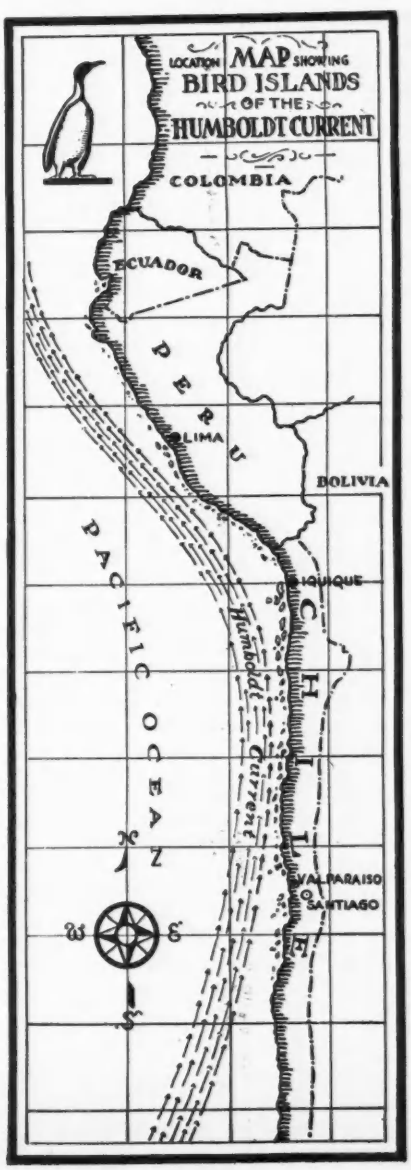
It does not leach out of the soil with the first heavy rain. Nor does it remain inert during periods of drought. Genuine HUMBOLDT Guano feeds groves and fields CONSTANTLY.

The most convincing argument for NACO Brand fertilizers is to see what they have done. Make this simple eye-test for yourself.

Go look at the groves that have been fertilized regularly with NACO Brands. Look at the amount of fruit on these NACO-fertilized trees. Look at the size and quality of the fruit. Look at the condition of the groves. Then make up your mind to use Genuine HUMBOLDT Guano on your groves this fall.

If you don't know the names of NACO users near you, write for them. Or simply pick out the finest looking grove you can find and ask what fertilizer was used.

Field representatives of the Nitrate Agencies Company are always at your service. Put your knotty problems up to them for solution. They'll give you a practical, unselfish solution in a hurry. They make no charge for this work.



Annual Fruit and Vegetable Report

L. M. RHODES
COMMISSIONER FLORIDA STATE MARKETING BUREAU

Compiled by Frank Scruggs
Market News Specialist

Shipments equivalent to 98,262 cars of fruits and vegetables were shipped out of Florida by rail, boat and truck during the 1931-32 season, having an estimated gross shipping point valuation of $70,673,951. The foregoing shipment and value estimate for the so-called commercial movement does not include the equivalent of 17,871 cars of Florida fruits and vegetables consumed or canned within the State. The total volume of fruits and vegetables harvested and sold from the groves and farms amounted to 116,133 carloads with a valuation of $81,535,013 if we include $7,607,024 as Florida's portion of all transportation charges spent within the State or waters adjacent. The 1931-32 crop harvest valuation of $81,534,913 may be compared to $97,077,214 for 1930-31 and $88,-757,313 for 1929-30 season, and was not a poor year when all factors involved are taken into consideration.

Commercial shipments of citrus by rail and boat were 49,235 carloads (385 standard boxes per car) with an estimated 7,428 cars (340 field boxes per car) out by auto truck. Citrus fruit used in canning accounted for 2,843 cars (340 field boxes per car) and that consumed in the cities, towns and villages of the State accounted for the equivalent of 6,000 cars. The total volume of citrus harvested and sold from the groves was estimated at 63,506 carloads, or 24,-443,523 boxes, with a gross shipping point valuation of $47,499,006 if we include $4,422,254 spent on transportation with the State. All oranges, grapefruit and tangerines averaged a "net return" of 46c per average box for a total "net return" of $11,-279,634, as compared to $8,794, 052 for the big citrus crop season of 1930-31.

Vegetables, melons, and non-citrus fruits hauled by rail or boat were 39,692 cars with 1907 carloads out by auto truck. More than 7,478 carloads were consumed in Florida while approximately 200 carloads, mostly tomatoes, were canned in Florida. The foregoing commodities would have filled 50,627 cars with an estimated valuation of $34,036,007 if $3,184-,770 transportation charges are included. The price return per car was only about 5 per cent less than for the 1930-31 season. The extraordinary large volume of beans, together with the satisfactory average prices prevailing, was the principal reason for the good showing of vegetables. Strawberries also moved in fairly good volume with very satisfactory average prices.

The 20 leading Fruit and Vegetables shipping counties during 1931-32 season, according to official records supplied by the U. S. Bureau of Agricultural Economics, and estimates made by the State Marketing Bureau, were in order of volume as follows: Polk, Seminole, Orange, Palm Beah, Lake, Hillsborough, Manatee, Broward, Dade, Pinellas, Highlands, Marion, Sarasota, Volusia, Hardee, Lee, Alachua, Brevard, St. Lucie, and Indian River.

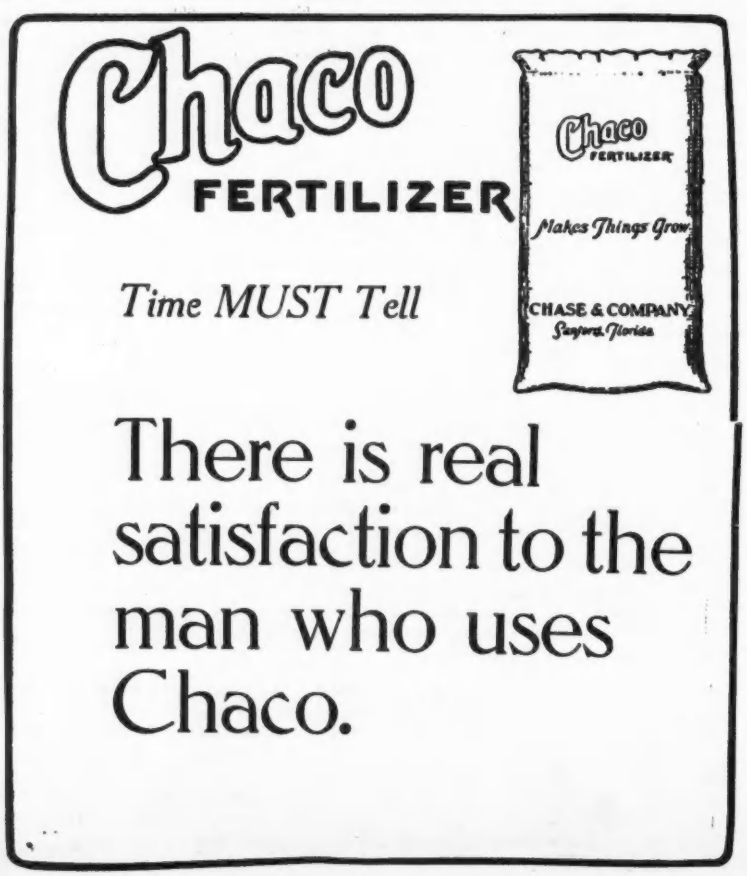
The 12 counties leading in Strawberries, Melons, and other Non-Citrus Fruits, were as follows: Hillsborough, Lake, Alachua, Gilchrist, Polk, Marion, Suwanee, Hardee, Jackson, Levy, Sumter, and Orange.

The 12 counties leading in shipments of Vegetables, in order of carlots, were as follows: Seminole, Palm Beach, Broward, Dade, Manatee, Sarasota, Collier, St. Johns, Orange, Hillsborough, Lee, and Flagler.

The 15 counties leading according to our estimate of the gross f. o. b. value of rail and boat shipments were approximately as follows: Polk, Orange, Seminole, Palm Beach, Hillsborough, Manatee, Lake, Broward, Dade, Pinellas, Highlands, Sarasota, Hardee, Volusia, and Barion.

"We farmers of Florida have got to come back to sane, live-at-home farming", says Spuds Johnson.

In sunny Florida a little Italian rye grass will keep the lawn green all winter. Sow it during October.



Play Safe - with GULF BRANDS

Experiments are dangerous

Regardless of economic conditions Gulf Brands are always of the same dependable quality. Always made from carefully selected materials — formulated for specific crop purposes. No danger of harmful soil reactions when you use Gulf Brands. The elements are correctly blended and combined.

Hundreds of Florida's outstanding growers use Gulf Brands of Fertilizer every year. Not because they cost less per ton, but because they are cheaper in the end. Growers know, too, that they can rely on the Gulf Field Man. He does not depend on casual observations in making his recommendations. He is thorough and conscientious.

Why experiment? Why take chances? Why risk the health of your trees with untried materials and unreliable advice? Play safe with Gulf Brands. You'll find them cheaper in the long run.

Gulf *BRANDS OF* **Fertilizer**

THE GULF FERTILIZER COMPANY

Tampa, Florida

Field Men at Leesburg, Orlanda, Cocoa, West Palm Beach, Winter Haven, Bartow Bradenton, Clearwater, Wauchula and Tampa

Non-Arsenical Stomach Poisons for Grasshopper and Beetle Control

(Continued from last month)

Although it has been stated that these grasshoppers are very active, they are rather quiet until eight or nine o'clock in the morning, especially during the fall and winter months, and it is doubtful that the dusting machine would disturb them if the dust were applied in the early morning. During the summer they are no doubt active earlier in the day.

KAOLISH, made up of 94.26 per cent sodium aluminum flouride, applied as a spray, gave only a 20 per cent kill in six days, and approximately ninety-nine per cent of the leaves of the plant were eaten. The adhesive quality of this material is also very poor on citrus. By adding 1 per cent of Penetrol, a sulfonated oil, a kill of 70 per cent was obtained in five and one-half days and 80 per cent in eight and one-half days.

COPPER CARBONATE baits and sprays only gave fair results. Copper carbonate at the rate of 16 pounds per 200 gallons of water, 50 pounds of sugar, and 10 gallons of syrup gave only a 36 per cent kill in seven days. When the amount of copper carbonate was raised to 25 pounds with the same amount of the above ingredients, a kill of 80 per cent was obtained in five days and 100 per cent in seven days. After six and one-half days approximately fifty per cent of the leaves of the plants had been eaten and on the checks, ninety-nine per cent. Copper carbonate in a bran mash was tested in amounts from 2 pounds to 9 pounds to 50 pounds of bran with syrup and grapefruit. The syrup was increased from four quarts to six quarts to make the bait more attractive, but the kill was not increased. In one test copper carbonate, used at the rate of 5 pounds to 20 pounds of bran with 2½ quarts of syrup, gave a 100 per cent kill in five days.

A 5-5-50 Bordeaux mixture gave a 60 per cent kill in five days and 80 per cent in ten days. A combination of a 5-5-50 Bordeaux mixture and arsenate of lead at the rate of 4 pounds to 100 gallons of water gave only a 64 per cent kill in seven days.

Neither bichloride of mercury nor strychnine gave any results as a poison for grasshoppers.

Out of 200 grasshoppers that were not exposed to poison, only six parasites were observed. The parasites were tachinid flies.

Rose Chafers
(Macrodactylus angustatus)

In February our attention was called to a light infestation of rose chafers in a grove at Bradenton. These beetles were eating the buds, blossoms, and young fruit of orange trees in one section of the grove. A number of them were collected and a few tests were made to determine the effect of the silicofluorides as a control measure.

It has been mentioned in a previous statement that Kalite did not stick satisfactorily to citrus leaves when applied as a dust. In order to improve the sticking quality of this dust, Penetrol was added. The Kalite was spread out on a piece of paper where Penetrol, a sulfonated, oxidised oil derivative was added by spraying it over the dust in a fine mist with a small spray gun. The dust was then thoroughly agitated. This process was repeated several times. The mixture was applied with a small dust gun as the beetles were in screen cages, the same cakes that were used in the grasshopper experiments. Orange twigs with blossoms on them were put into bottles of water for food for the beetles. In the test was obtained in two days: where the blossoms only were dusted the kill was 50 per cent in three days, which was the same mortality as in the check cages. Kalite, without the addition of Penetrol, dusted on beetles and blossoms gave a 60 per cent kill in two days, 80 per cent in three days, and a 60 per cent kill when the blossoms alone were treated. It is quite possible that the Kalite and Penetrol mixture acted as a repellent to the beetles, since they were usually on the sides of the cage when observations were made. The treated blossoms were not chewed by the beetles, but in the check they were.

Although the speaker cannot give direct reference at this time as to the use of a light oil in a dust to increase the adhesive qualities, it has been used at the rate of four to six pounds per 100 pounds of lime-arsenate of lead dust in codling moth control.

One series of tests was made by

(Continued on page 24)

IRRIGATION

Ames Lockseam (slip joint) Pipe

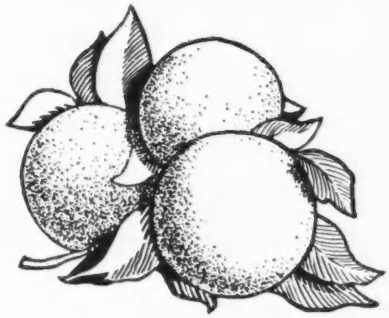
Universal Cast Iron (bolted joint) Pipe

Advices of our Engineering Department offered without charge. Let us show you some of our installations.

67 Years of Service

The Cameron & Barkley Co.

Tampa, Fla.



Don't take another CHANCE . . . *play safe with* V-C FERTILIZERS

WEATHER and pests are hazard enough; don't take a chance on your fertilizer, too. Play safe with V-C fertilizer.

V-C fertilizer *has* to be reliable—you can count on that! Its ingredients must be as they're stated, its analysis has to be true, its mechanical condition must be exactly right, its weight has to be full. Nothing less would be good enough for V-C or the friendly old company that makes this dependable fertilizer.

There are special V-C grades for citrus on all types of soils—hammock, upland and piney flats; also, special grades for tomatoes, strawberries, pineapples, avocados, cabbage, cauliflower, grapes, peaches, pecans—for every fruit and vegetable Florida grows. Every grade is the result of scientific test and practical experience. Your nearest V-C dealer has them, waiting for you.

It's expensive to experiment with unknown or untried brands of fertilizers. This year, *play safe with* V-C!

VC FERTILIZERS

Dealers at All Distribution Points

A lifetime of experience guides the careful making of V-C fertilizers, and years of laboratory research constantly open new ways for making them better. Accuracy comes first in V-C's 39 modern factories—but service, yours for the asking, comes next in V-C's Agricultural Service Bureau and among V-C's representatives everywhere. If you are not certain what grade of fertilizer to use, write to V-C at Jacksonville.

VIRGINIA-CAROLINA CHEMICAL CORP., Jacksonville, Fla.

NON-ARSENICAL STOMACH POISONS FOR GRASSHOPPER AND BEETLE CONTROL

(Continued from page 22)

placing the beetles under a small screen and no food supplied. One lot of beetles and the area where they had to crawl about was dusted with the Kalite-Penetrol combination. The beetles were all dead in 48 hours. Another lot was dusted and placed under the screen with no dust under it and 80 per cent were dead within the 48 hour period; in the check 20 per cent were dead. This again demonstrated the value of hitting the insects with this material.

Kaolith, applied as a spray, at the rate of 6 pounds per 100 gallons of water and one gallon of syrup gave a 90 per cent kill in three days when both the beetles and blossoms were sprayed, and 80 per cent when the blossoms alone were treated. In the check, there was a mortality of 70 per cent so that very little can be learned from this experiment as to the real value of this material as a control for these beetles.

In conclusion, sodium flouride and Kalo used in a bran mash, gave the most promising results and were the most economical in controlling grasshoppers. Both of these materials gave results comparable to a Paris green bran mash in like amounts. Kalite, used as a dust, gave fair results, especially when it came in contact with the insects. Copper carbonate gave only fair results, unless used in rather large amounts. None of the spray combinations was very satisfactory.

So few tests were made with the rose chafer that no definite recommendation can be made at this time, except that a better kill can be obtained when the insecticide comes in contact with this type of insect. It is also likely that it will seldom be necessary to take control measures against these beetles in the grove, as this is the first instance in Florida it has been reported damaging citrus.

(See tables in next columns)

FOR SALE

Lists of Florida Citrus Growers compiled from recent survey of groves, arranged by counties. Name, address, acreage and legal description.

Also list wealthy residents of Florida.

W. L. Lamar
P. O. Box 333
JACKSONVILLE, FLA.

INGREDIENTS OF MATERIALS USED

Kalite	(Sodium silicofluoride	18.0 %
	(Sulfur	19.0 %
	(Inert ingredients	62.0 %
Kaolith	(Sodium aluminum fluoride	94.26 %
	(Inert ingredients	5.24 %
Kalo	(Sodium silicofluoride	96.0 %
	(Inert ingredients	4.0 %
Sodium fluoride — active ingredients		90 — 95 %
Arsenate of Lead — active ingredients		98 %
Copper — active ingredients — Metalic copper		18 %

Observations of treated plants exposed to grasshoppers.

Kalite, ¾, Talc, ¼, dusted on plants and grasshoppers	Leaves eaten	5 %	after 6½ days
Kalie dusted on plant and grasshoppers	Leaves eaten	1 %	after 6½ days
Kalite dusted on plants only	Leaves eaten	99 %	after 6½ days
Kaolith sprayed on plants only	Leaves eaten	99 %	after 6½ days
Lead arsenate, 2 lbs.	Leaves eaten	90 %	after 6½ days
Check	Leaves eaten	99 %	after 6½ days
Strychnine Bran Bait	Leaves eaten	99 %	after 6½ days
Kalo Bran Bait	Leaves eaten	1 %	after 6½ days
Sodium fluoride Bran Bait	Leaves eaten	1 %	after 6½ days
Copper carbonate spray	Leaves eaten	50 %	after 6½ days

The following tables gives in detail the results of the various experiments.

Test No.	Applications	No. Specimens	% Dead	Days	% Dead	Days	% Dead	Days	% Dead	Days
	DUSTS									
1.	Kalite—Plants and grasshoppers dusted	20	80	2½	84	3½	84.6	4½	100	6½
2.	Kalite—Plants and grasshoppers dusted	15	86	2½	86.6	3½	86.6	5½	100	6
3.	Kalite—Plants and grasshoppers dusted	20	60	2½	80	3½	100	4½		
4.	Kalite—Plants dusted only	20	5	2½	20	3½	40	4½	55	6½
5.	Kalite, 3 parts, Talc, 1 part. Plants and grasshoppers dusted	19	84.6	2½	84.6	3½	90	4½	90	6½
6.	Kalite, 3 parts, Talc 1 part. Plants and grasshoppers dusted	20	85	2½	95	3½	100	5½		
7.	Check for tests 1, 2 and 5	20	5	2½	5	3½	10	4½	60	6½
8.	Check for tests 3, 4 and 6	20	5	2½	25	4½			35	6½
	SPRAYS									
9.	Kaolith—4 lbs. per 100 gallons	20	10	2	20	4			20	6
10.	Kaolith—4 lbs. per 100 gallons plus Penetrol 4%	20	60	2½	65	3½	70	5½	80	8½
11.	Arsenate of Lead, 2 lbs. per 100 gallons	20	10	2½	30	4½	65	5½	85	10
12.*	Arsenate of Lead, 2 lbs. per 100 gallons	80	13.7	2½	22.5	4½	27.5	5½	37.5	12
13.	Arsenate of Lead, 4 lbs., per 100 gallons	25	16	2			52	5	64	7
14.	Bordeaux Mixture 5-5-50	20	15	2½	60	4½	60.5	5½	80	10
15.	Copper carbonate 16 lbs., Sugar 50 lbs., Syrup 10 gal., Water, 200 gal.	25	4	2½	1		24	5	36	7
16.	Copper carbonate 25 lbs., Sugar 50 lbs., Syrup 10 gal., Water, 200 gal.	25	36	2½			80	5	100	7
17.	Check for test 9	20	5	2½	5	3½	10	4½	60	6½
18.	Check for test 10, 11, 12 and 14	20	5	2½	25	4½	35	6½	85	10
19.	Check for test 13, 15, and 16	25	0	2	4	3½	8	4½	32	7
	BAITS									
20.	Sodium fluoride 2 lbs., Oat-meal 20 lbs., 4 Lemons	20	5	2	5	3	10	4	40	6
21.	Sodium fluoride 2 lbs., Bran 20 lbs., Syrup 2 qts. 4 Lemons	20	35	2½	85	3½	85	4½	90	6½
22.	Sodium fluoride 1 lb, Bran 20 lbs., Syrup 2 qts. 5 Grapefruit	20	85	2½	95	3½	100	4½		
23.	Sodium fluoride 2 lbs., Bran 50 lbs., Syrup 1 gal. 15 Grapefruit	25	92	2	100	3				
24.	Paris Green 1 lb, Bran 20 lbs., Syrup 2 qts., 4 Lemons	15	80.9	2	95	3	100	4		
25.	Kalite, 1 part, Bran, 9 parts, Syrup 2 qts., 4 Lemons	20	0	2½	0	3½	10	4½	25	6½
26.	Kalo 2 lbs., Bran 50 lbs., Syrup 1 Gal., 10 Grapefruit	25	96	2	100	3				
27.	Kalo 3 lbs., Bran 50 lbs., Syrup 1 Gal., 10 Grapefruit	25	100	2						
28.	Kalo 4 lbs., Bran 50 lbs., Syrup 1 gal., 10 Grapefruit	25	96	2	96	3	100	4		
29.	Kalo 3 lbs., Bran 50 lbs., Syrup 1 gal., 10 Grapefruit	25	100	2½						
30.	Kalo 3 lbs., Bran 50 lbs., Syrup 1 gal., 15 Grapefruit	25	96	2	100	3				
31.*	Kalo 3 lbs., Bran 50 lbs., Syrup 1 gal., 10 Grapefruit	80	25	1	50	2	97.5	3		
32.	Strychnine 10 gr., Bran 20 lbs. Syrup 2½ qts., 4 Lemons	25	0	1½	8	4½	12	5½		
33.	Bichloride of Mercury, 1-200, Bran 20 lbs., Syrup 2½ qts., 4 Lemons	25	4	2	8	5	24	7		
34.	Copper carbonate 5 lbs., Bran 20 lbs., Syrup 2½ qts., 4 Lemons	25	80	3	100	5				
35.	Copper carbonate 3 lbs., Bran 50 lbs., Syrup 4 qts., 10 Lemons	25	20	1½	68	3½	72	4½	76	5½
36.	Copper carbonate 4 lbs., Bran 50 lbs., Syrup 4 qts., 10 Lemons	25	24	1½	52	3½	76	4½	96	5½
37.	Copper carbonate 5 lbs., Bran 50 lbs., Syrup 4 qts., 10 Lemons	25	20	1½	64	3½	80	4½	88	5½
38.	Copper carbonate 6 lbs., Bran 50 lbs., Syrup 5½ qts. 10 Lemons	15	46.6	2	53.3	3	73.3	4	86.6	6
39.	Copper carbonate 7 lbs., Bran 50 lbs., Syrup 5½ qts., 10 Lemons	15	53.3	2	66.6	3	66.6	4	93.3	6
40.	Copper carbonate 8 lbs., Bran 50 lbs., Syrup 5½ qts., 10 Lemons	15	53.3	2	86.6	3	86.6	4	93.3	6

41.	Copper carbonate 9 lbs., Bran 50 lbs., Syrup 5½ qts., 10 Lemons - - - - - -	15	33.3	2	60.6	3	86.6	4	86.6	6		
42.	Copper carbonate 6 lbs., Bran 50 lbs., Syrup 6 qts., 15 Grapefruit - - - - - -	15	33.33	2	53.33	3	80	4	86.6	7		
43.	Copper carbonate 7 lbs., Bran 50 lbs., Syrup 6 qts., 15 Grapefruit - - - - - -	15	46.66	2	66.66	3	80	4	80	7		
44.	Copper carbonate 8 lbs., Bran 50 lbs., Syrup 6 qts., 15 Grapefruit - - - - - -	15	40	2	66.66	3	73.33	4	93.33	7		
45.	Checks for tests 42, 43 and 44	15	6.66	2	13.33	3	20	4	26.66	7		
46.	Checks for tests 20, 21, 24 and 25 - - - - - - - -	20	5	2½	5	3½	10	4½	60	6½		
47.	Checks for test 22 - - - -	20	5	2½	25	4½	35	6½	85	10		
48.	Checks for tests 23, 26, 27 and 28 - - - - - - - -	25	0	2	4	3						
49.	Checks for tests 29, 33, and 34	25	0	2½	4	3½	8	4½	32	7		
50.	Checks for tests 30, 31, 32, 35, 36 and 37 - - - - - -	25	0	2½	4	3½	8	4½	12	5½		
51.	Checks for tests 38, 39, 40 and	30	3.3	2	9	3	15.1	4	24.2	6		

*Screen cage, 6 ft. x 6 ft. x 6 ft. over three year old tree.

SOWING CROTALARIA SEED THIS FALL WILL SAVE SPRING LABOR

(Continued from Page 17)

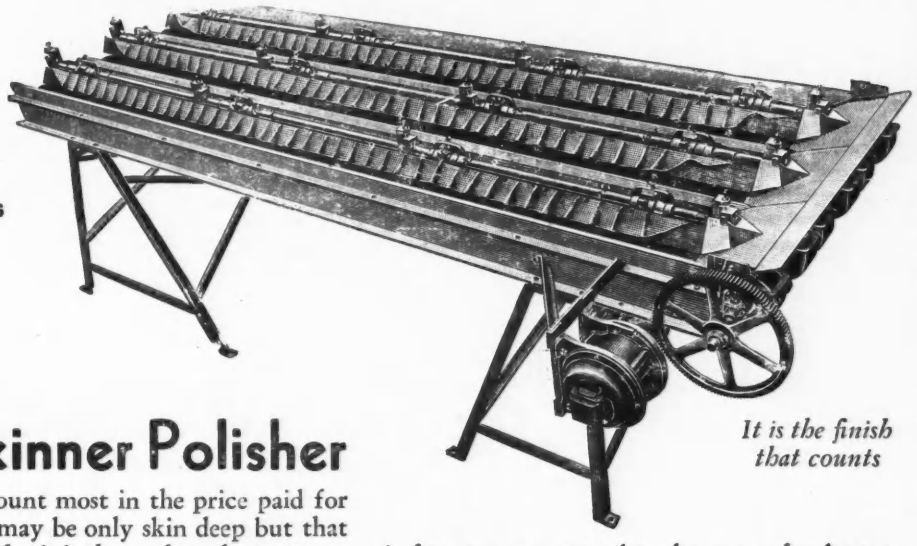
gave me a good idea, and one that I am going to adopt on my own farm. Gus figured that he could take crotalaria seeds as they mature this fall and sow them in fields which he expects to graze to hogs during the fall and winter, and let the hogs root the seeds in and plant them for him. It struck me as being a good idea.

With crotalaria growing practically all over Florida this year, and fields of yellow blossoms common along the roadsides from one end of the State to the other, there will be a considerable quantity of seed this winter. No doubt many fields will be planted to crotalria next spring. Of course, the method suggested by Gus is most applicable to fields that will be "rested" next year. Where it is expected to plant these fields in corn, cotton or other crop, the plan might not be practicable. But there is a tremendous acreage in the State which is "rested" every other year, and it would be much better to have crotalaria than weeds growing on such fields.

Another way in which such a method will save money is by sowing the seeds with little or no threshing. The pods can be flailed a few times, and then seeds, pods and all sown. It seems that this method would give a sufficient distribution of the seed to produce a good stand next year.

If the seeds are sown thickly enough, it might even be possible to sow them this fall on land which is to be planted next spring to cotton and corn, and let the crotalaria grow after the cotton and corn are laid by. However, undoubtedly many of the seeds would sprout early, and the young plants would be killed by cultivation.

Modern Equipment Reduces Packing Costs



The Skinner Polisher

It is the finish that counts

Appearances count most in the price paid for fruit. Beauty may be only skin deep but that is deep enough for it is the surface that attracts —they buy by the eye.

Obsolete equipment has no place in the modern packing house. Using an out-of-date polisher is like using an old car—you are paying for a new one yet riding in the old.

The Skinner Polisher is better today than ever before. It is made larger and longer and will handle a larger volume and do a better job. It has set a new standard of pack wherever used.

A few cents more a box because of a better finish will soon pay the original cost.

Before starting your season's operations get our proposal on one of these fine polishers. A quarter of a century of experience manufacturing packing house equipment for Florida use has enabled us to produce machines of wonderful efficiency and durability.

A call from one of our men will place you under no obligation.

FLORIDA CITRUS MACHINERY COMPANY

DIVISION FOOD MACHINERY CORPORATION

B. C. SKINNER, *Pres.* DUNEDIN, FLORIDA

CITRUS COMMENTS

(Continued from page 11)

not maintained injury to the plant occurs immediately. The same situation occurs in the soil, but on an immense dilution.

The conclusion is inescapable that a depleted soil, (one in which plant food total is low) is more subject to dangerous concentration of a single material than one in which there is a plentiful supply of many kinds of materials.

Building up a soil reserve is a very difficult task when undertaken during dry weather. If as is the case this year we are following a comparatively dry summer the task is even more serious. Under such conditions, delaying fertilizing too long will force the grove into a state of decline which can hardly be headed off in sufficient time to help us hold a winter crop and set a spring bloom as well.

Fruit Quality, the most elusive factor in fruit growing, is the sum total of a composite cross-section of our year's work. More accurately it should be at least eighteen months work. If the quality is good we are overjoyed, if poor we blame the weather or someone else. Fall fertilizing affects the fruit quality of the fruit on the tree both inside and outside. It also has a decided prenatal influence on the next succeeding crop as well. Both effects can be kept favorable if the quality forming elements are kept available in sufficiently high concentration. Nitrogen sources alone will impair fruit quality. But as a necessary activator to plant work it should be used, well buffered with plenty of other materials.

The ratio that nitrogen sources will bear to other sources is a matter that cannot be determined with a high degree of accuracy except that it be decided in the grove itself. General statements and definite ratios for fall are misleading and will often lead to serious disappointment when used without a grove check for previous applications, present tree condition, amount of crop, variety of fruit, condition of crop and weather conditions. The ratio of nitrogen spoken of as ammonia to potash can run one to one or one to three and higher, it will depend upon the grove and the conditions found there. Other materials do not have any definite ratio. Their use will depend on their presence at the time fertilizing is planned. Since their presence is absolutely necessary to continued crop production, it seems much better to continue their addition than to trust to their being present and to a rather indefinite availability test that will alter seriously during dry weather conditions or during cold weather.

Fall fertilizing is the most important application of the year since it directly affects crop maturity, fruit quality and is the means of starting the grove off on a successful or unsuccessful new year as the case may be. There are more vital points decided during the next few months in the grove than at any other time. It is better to look forward now with confidence than to look back next June with regret.

CITRUS WHITEFLY AND SCALE LIKELY TO BE HEAVY THIS SEASON

Gainesville, Fla.—Citrus whitefly and scale-insects are likely to do more damage than usual this Winter, since the dry summer has not been favorable to friendly fungi which help to keep these insects under control, explains J. R. Watson, entomologist with the Florida Experiment Station.

Facing this situation and with the rainy period past, a thorough fall clean-up is especially necessary in many groves. This clean-up, he says is best made during October since the fall brood of the common citrus whitefly has emerged and the young larvae are more easily killed now than they will be later in the season. There will not be another brood of whitefly until March, but it is important to make the clean-up early to prevent the insects from further draining the trees. By March most of their damage has been done.

Another reason for making the fall clean-up spray early is the danger of frost on late sprayed trees. Since the clean-up spray is an oil emulsion, it is somewhat of a shock to the tree and may increase the danger of damage from frost. Neither is it safe to spray with an oil when the temperature is more than 90 degrees, but from now on such hot days will be uncommon.

Statement of the Ownership, Management, Circulation, Etc., Required by the Act of August 24, 1912, of The Citrus Industry, Published monthly at Tampa, Florida, for October 1, 1932.

State of Florida.
County of Hillsborough.

Before me, a Notary Public, in and for the state and county, aforesaid, personally appeared S. L. Frisbie, who, having been duly sworn according to law, deposes and says that he is the editor of The Citrus Industry, and that the following is to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 433 Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1—That the names and addresses of the publisher, editor, managing editor, and business manager are:

Editor, S. L. Frisbie, Tampa, Fla.

Business Manager, S. Lloyd Frisbie, Bartow, Fla.

2—That the owners are:

Associated Publications Corporation, Tampa, Florida.
S. L. Frisbie, Tampa, Fla.
S. Lloyd Frisbie, Bartow, Fla.
B. L. Gable, Lutz, Fla.
F. L. Skelly, Orlando, Fla.
Frank Kay Anderson, Altamonte Springs, Fla.
B. W. Skinner, Dunedin, Fla.
F. P. Wall, Mansfield, Ohio.

3—That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages or other securities are:

Bankers Mortgage Co., Orlando, Fla.

Sworn to and subscribed before me this 11th day of October, 1932.

J. W. WADSWORTH,
Notary Public.

"Black Leaf 40"

Widely recognized as a dependable control for Aphis and Thrips on Citrus Fruits. May be added to other standard spray materials and fungicides.

Kills APHIS and THRIPS

This "double acting" insecticide has been the favorite spray material of successful citrus growers for the past 20 years. It not only kills Aphis and Thrips by direct contact, but also by nicotine fumes. This is an advantage not possessed by any non-poisonous, non-volatile insecticide.

Recommended By Expreriment Stations

"Black Leaf 40" enjoys the endorsement and recommendation of leading growers, Agricultural Colleges and Experiment Stations and editorial writers throughout the country. Being highly concentrated, this reliable insecticide is economical to use as a little goes a long way. Full directions appear on every pacakge. Sold everywhere.

Tobacco By - Products & Chemical Corporation
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KILLS BY CONTACT AND FUMES

LIFE HISTORY AND CONTROL STUDIES FOR MELANOSE AND SCAB OF CITRUS

(Continued from page 8)

were infected early the previous spring. This indicates that a late fall infection of scab may be an important factor in determining the severity of the disease the following year.

At the present time, it is not known definitely how these old scab lesions initiate the first spring infections on the young expanding leaves. Spores of the type found on young scab lesions have not been observed on the old over-wintering lesions. It is thought that the primary infections in early spring result from certain thick walled resting cells present in these old scabs or from other fragments of the fungus which may scale off as the result of weathering.

During periods of rainy cool weather, the primary lesions on the young leaves produce countless minute spores which are capable of immediate germination and of setting up new infections on susceptible parts. Under favorable conditions, a young scab lesion may begin to sporulate in in about ten days and may continue this activity for several months. Thus it will be apparent that, with a small initial infection in early spring, accompanied by subsequent favorable weather for the development of the fungus, the disease can increase at an alarming rate in susceptible trees.

Seasonal conditions play an important part in the dissemination and development of scab. Abundant moisture is essential for sporulation and subsequent infection. In years of rainy springs scab is very likely to be severe on grapefruit, provided the rainy periods occur while the leaves and fruits are in a stage of development susceptible to infection, and provided that some hold-over lesions are present to initiate the disease. In localities where heavy fogs and dews normally occur during the critical period, or in low-lying hammocks or flatwoods soils, which are usually damp localities, scab is commonly quite severe even during springs of minimum rainfall. From a critical study of the disease over a period of five years, Winston found that, under average Florida conditions, moisture rather than temperature is the important limiting factor in natural infection.

The behavior of the disease this past spring on non-irrigated groves, illustrates clearly the importance of rainfall in the spread and severity of infection. At Lake Alfred, the rainfall during the first four months of 1932, was 6.59 inches, or 9.35 inches less than fell during the same period of 1931, and 4.92 inches less than the yearly average for that period. This deficiency had the effect of markedly retarding the spring flush of growth of citrus trees and also scab early in the season. The early served to check the development of partial flush that developed was but lightly infected with scab in trees that carried an abundance of hold-over lesions on the old foliage. During April and early May, a heavy flush of growth and bloom appeared, and considerable fruit set as a result. Up to May 17th, this foliage and fruit was practically free from scab infection even on such a notoriously susceptible variety as Samson tangelo. The larger proportion of the fruits were still susceptible to infection, however, since they were mostly less than three-quarters of an inch in diameter. From May 17th to June 1st, rains occurred almost daily. The precipitation for this period at Lake Alfred was 5.92 inches. When scabby groves were visited about June 1st, much recent infection was found on the fruits and young foliage. During the same period a big increase in melanose infection was also observed.

Leaves are most susceptible to infection with scab in the very early stages of growth. They become entirely resistant when they reach half an inch in width. Young grapefruit are very susceptible to infection immediately after the petals fall. They become progressively resistant as they enlarge, and are immune when they reach about three-quarters of an inch in diameter.

Spraying Experiments

Experiments for the control of both melanose and scab were started this year. These experiments began in the laboratory and greenhouse, where the toxicity of a considerable number of fungicides to the spores of the fungi have been tested under controlled conditions. These tests serve to weed out certain proprietary sprays as undesirable and give an indication of what may be expected when the same fungicides are tried under field conditions. They do not give an idea of the adhesive qualities of a spray material or of possible injury to the tree. Spraying experiments on a large scale in the field must serve as the final test in the evaluation of any fungicide.

We are running spraying experiments for scab at Vero Beach, Bradenton, and Lake Alfred at the present time. Four spray materials containing sulfur, three containing copper, and one containing organic mercury, are being tested in these experiments. Some of the tests are being made on tangelos and King oranges, but the majority of the trees in the experiments are grapefruit of bearing age.

Our melanose experiments are located at Largo and at Lake Alfred, and are much more extensive. At Largo, we are attempting to control the disease on large grapefruit trees that are 23 years old. Dead wood has been allowed to accumulate in these trees for several years and the disease is very abundant. Without removing this dead wood, we are trying to check the disease with Bordeaux-oil, lime and sulfur, and Bentonite sulfur. Some plots in this block received two applications of each of these materials, one in January and one in May. Other plots received a single application of spray in May.

In the same grove we are experimenting on a block of 195 four-year old grapefruit trees that were practically free from fungous diseases and insect infestation at the time the experiment was started. Our object in selecting this block was to determine whether the application of a single dormant spray will keep a clean grove healthy with regard to scab and melanose. Standard Bordeaux mixture and liquid lime-and-sulfur were tested on this area for this purpose. It is planned to continue this experiment for 8 or 10 years.

At the Experiment Station at Lake Alfred, on a block of 512 grapefruit trees eight years of age, we are testing out the relative merits of spraying and pruning for commercial melanose control. This grove is divided into four equal plots, as regards varieties, cultivation, and fertilization. One plot will receive no treatment for control of melanose. A second was pruned commercially, a third was sprayed and the fourth was both pruned and sprayed. Cost records of all these operations will be kept and it is planned to run the experiment for 8 or 10 years.

The progeny grove at the Experiment Station is being utilized to make field trials of various spray materials for the control of melanose. This grove contains several selections of the more important varieties of citrus and contains nearly 500 trees of bearing age. It is, therefore, quite well adapted for this purpose.

Any spraying program designed for Florida conditions must take into account the possible increase in numbers of scale insects resulting from the use of fungicides. For this reason we are devoting considerable time to the testing of sulfur sprays, since they possess insecticidal as well as fungicidal properties. In connec-

(Continued on page 34.)

FLORIDA'S PLACE IN FRUIT AND VEGETABLE PRODUCTION

(Continued from page 5)

fruit business must work out his destiny increasingly in a World market. The fruit man is an internationalist whether he desires to be or not. His industry is developing in that direction and his welfare is tied up with the welfare of nations.

Florida grapefruit probably shows a larger increase in percentage of exports during recent years than any other fruit.

If you ask me what further reason there is for encouragement to Florida fruit and vegetable growers, my affirmative answer is—First: present cost of production is the lowest in the past 50 years; second: costs of packages have decreased materially; third: there has been a steady improvement in varieties, quality, and method of handling; fourth: transportation facilities have rapidly increased to such an extent that materially lower cost of transportation in the decade ahead is absolutely assured, insuring a wider distribution to markets near and far, including every hamlet; fifth: greatly increased efficiency and decreased costs of distribution, particularly in retail fields have been accomplished in recent years, including especially increased consumer advertising of fruits and vegetables by both wholesale and retail distributors. There is at present an insistent demand, not only on the part of the grower but also on the part of the consumer for further improvements in the system of supplying the markets with fruits and vegetables in a manner more nearly equalling the efficiency in the distribution of that other chief food essential—milk. That the demand of every intelligent mother throughout the country is for a daily supply of fresh wholesome milk and fresh wholesome fruits and vegetables is an understood fact today; sixth: the rapid increase in the sale of electric refrigerators, greatly facilitating the distribution of fruits and vegetables through to the ultimate consumer. In former years the problem of getting Florida fruits and vegetables to the wholesale market in prime condition was successfully accomplished and even from the wholesale market to the retailer was done with more or less success, but the final lap of the journey from the retailer to the consumer's stomach was the most difficult to negotiate. The electric refrigerator at record low costs has solved this problem. Every economy in production, packing, transportation, wholesale and retail distribution directly and principally accrues to the benefit of the consumer.

Briefly summarizing, this indicates on the one hand a steadily increasing demand for Florida fruits and vegetables and, on the other hand, a better production at a lower cost of production, transportation, and distribution to the consumer which means with intelligent management on the part of the grower a prosperous decade ahead.

The drastic losses suffered by thousands of innocent people, incidental to the radical readjustment now taking place in our national life, are to be profoundly regretted, but there have already been accomplished reforms and improvements in the conduct of business and people which would ordinarily require from 10 to 20 years, following such a hectic joyriding period as that which we have passed since the end of the World War. During those adventurous years, every law, human and divine has been ruthlessly disregarded and broken. A call to repentance is just now being heard and answered which is the soundest basis of all for hope and faith in the future.

As I have stated several times before, the cry of over-production has for 40 years been familiar to my ears. When I started in business at Oviedo just 40 years ago, Florida had an annual citrus production of over 4,000,000 boxes per year (and none in California), the cry was over-production. Despite the greatest business crisis in all history, Florida and California combined have, during the past three years, marketed each year annual crops of citrus aggregating 60,000,000 boxes, or an increase in 40 years of some 1500 per cent as against an increase of population during that period of less than 80 per cent, and there is less real reason for the complaint of over-production of citrus fruit today than there was in 1892.

I was personally present in Orange County the evening of December 28th, 1894 when the entire citrus industry was wiped out over night by the greatest freeze of history. The Florida vegetable industry at that time was relatively of much less importance than citrus, in fact, the great Florida celery industry had not then been born. Contrast that calamity with the present Florida situation of which there is considerable complaint.

Nothing can rob Florida of her climate, her productive soil, her proximity to the great consuming markets of the United States and foreign countries, her rail, motor, and water transportation making her products accessible not only to the domestic markets, but the foreign markets as well, and lastly the splendid class of people which constitute her population.

Lest I should inadvertently cultivate myself, or create in others, a new and undue feeling of optimism, it may be well for those of us who are depending upon the fruit and vegetable industry to remember that the very nature of this business requires that in every aspect of it, from production to consumption, it must be regarded as an exact science which automatically eliminates any chance of permanent success unless the most painstaking care, skill and efficiency characterizes those engaged in the business, both as individuals and collectively as an industry. How can it be expected that maximum results shall be achieved in distributing and marketing these highly perishable products evenly over the entire world market through the season, excepting by the most thorough organization and approved system and method throughout? On reflection, shouldn't we honestly admit that this great Florida fruit and vegetable industry has reached its present huge proportions in spite of, rather than as a result of, methods employed heretofore. In other words, Nature has supplied more than its full share of the prosperity thus far achieved and the human element and equation is still the principal problem confronting the industry.

In this age of organization in other lines of industry where the consumer is being furnished each year, if not each month, an improved automobile, radio, or movie, as well as the innumerable manufactured goods, included manufactured foods, there can be ahead no easy road or haphazard method adopted in this exacting business that will insure to the producer his full share of the consumer's dollar.

We may perhaps take a lesson from some California blue Pelicans. Secretary Wilbur describes the California blue Pelican, which also inhabits the Florida coast, telling what a vigorous bird it is which dives from some 30 feet in the air to catch fish, finding it necessary to work from early dawn to late at night to satisfy his appetite. Because of his pleasant surroundings and vigorous exercise in his daily occupation, his normal life is one of satisfaction.

During the boom period of the last decade a large fish canning plant was

erected on the California coast and the refuse from the plant furnished these pelicans with an abundant supply of food without any exertion. Following the panic of 1929, this canning plant, like many others, was compelled close down and these easy going pelicans were on the verge of starvation until the Secretary of the Interior imported some old-line pelicans from down the coast (or perhaps from Florida) who industriously initiated these starving pelicans in the natural way of earning a living.

Perhaps we can profitably take to ourselves the moral of this story.

Experimental Rates On Citrus Fruits

By J. Curtis Robinson, Executive Vice-President Growers and Shippers League of Florida

After several conferences between representative Florida shippers and railroad traffic officials of Florida lines, arrangements have been perfected for a substantial reduction in citrus rates to Southern territory as an experiment to meet truck competition.

The date when the reduced rates will be made effective has not been announced, but the railroads have limited the experimental rates to apply only to January 31st, 1933 and unless the reduced rates accomplish the purpose for which they were established they will expire at the end of January next year.

Reduction of from 25% to 35% of the present rates have been authorized and the destination territory to which these reductions apply has been divided into two groups, known as one and two. The 35% reduction applies to group one territory or to destinations nearest Florida going as far north as Columbia, South Carolina, Atlanta, Ga., and as far west as Montgomery and Mobile, Ala.

The 25% reductions apply extends much further west than it did last year.

The specific destination territory to which the reductions are to apply is to be described as follows— Group 1—(35% reduction) "To the territory on and south of the line of the Seaboard Air Line Railway, from Georgetown, S. C. to Lanes; the Atlantic Coast Line Railroad from Lanes to Columbia, through Sumter; Southern Railway from Columbia, from Columbia to Augusta, Ga., Georgia Railroad to Atlanta; on and east of the Atlanta and West Point Railway of Alabama to Montgomery, Ala. and the Louisville & Nashville Railroad to Mobile.

Group 2—(25% reductions)

Group two territory is described as follows—

"To the territory north and west of group one, and on and south of the line of the Atlantic Coast Line Railroad from Washington, N. C., through Hobgood and Rocky Mount to Wilson; Norfolk Southern Railroad to Raleigh; Seaboard Air Line Railway to Henderson; Southern Railway through Oxford, Durham, Greensboro, Winston-Salem, Statesville, Hickory, Marion, Asheville, Morristown, Tenn., and Knoxville, Tenn. to Harriman, Tenn., thence Tennessee Central R. R. to Nashville; on and east of L. & N. R. R. to Sheffield, Ala.; Southern Railway to Corinth, Miss.; Mobile & Ohio R. R. to Meridian, Miss., and N. O. & N. E. R. R. to New Orleans, La.

The railroads have arranged to publish these reduced rates to apply only in railroad owned ventilator cars and are only going to require 250 standard boxes to make a minimum carload of 22,500 pounds. This low minimum with the reduced rates is expected will enable shippers to compete to better advantage with trucks on shipments to southern markets.

THE UPWARD SWING

Keep in Line with the Upward Swing to Quality

The more golden fruit . . . rich, round, juicy, sweet . . . and the smaller mediocre and unattractive yield you produce for the market, the more extra profits you are going to enjoy. It is up to you as a producer to keep your crop in line with natural upward swing to quality.

A liberal application of Armour's BIG CROP Fertilizer at this time will insure immediate returns in fewer drops and better quality fruit from your present crop. In six months from now the feeding will be reflected in healthy vigorous tree growth after their winter sleep . . . a natural forerunner to a heavy quality crop.

Use Armour's BIG CROP Fertilizer for your fall application and get results now and six months from now. Armour's BIG CROP Fertilizers are a standard of excellence in formula and in results.

There is a standard brand of Armour's BIG CROP Fertilizer to keep your crops in line with returns promised by a natural upward swing of the quality pendulum.

Our field representatives will gladly made recommendations based on the requirements of your crops.

ARMOUR'S BIG CROP FERTILIZERS

ARMOUR FERTILIZER WORKS

JACKSONVILLE, FLORIDA

Wide Variety of Frozen Foods

Although comparatively new, the frozen food industry is fast establishing itself. So many different food products are now being sold to the consumers in a frozen condition, and experimental research has proved the possibility of freezing successfully so many others, that the importance of freezing as a method of food preservation must be recognized.

A recent survey of the situation made by the Frozen Foods Association of America shows that at present there are between 60 and 70 separate and distinct food products which are being frozen and sold commercially. This total simply lists the various cuts of meats under the two or three headings of beef, lamb, pork, etc., and if each different cut were counted as a separate item the list would be well over the 100 mark.

In addition there are approximately 100 more products which have been the subject of investigation and experiment, both by agricultural experiment stations and commercial organizations interested in the possibilities of freezing. Although not every product so investigated has proved suitable for freezing, the greater majority of them have survived the test, and can b efrozen successfully in commercially profitable quantities as the public demands them.

This record made in the space of a few years compares favorably with the older methods of food preservation. For example, the canning industry reported recently that there were approximatly 244 varieties of canned foods divided as follows: 65 varieties of vegetables, 43 of fruits, 37 of fish and shellfish, 29 of meats, 30 of soups, 28 of specialties, and 12 of ready-made entrees. Most of the items on this list, of products which have been frozen successfully. On the other hand, the roster of frozen items would contain a number of meat products which are not canned successfully, as well as various fruits, especially tropical fruits which thus far have not been commercially successful as canned products.

Inasmuch as the canning industry goes back more than 100 years to the days when Napoleon Bonaparte awarded a prize of 12,000 francs to Nicholas Affert for his canning inventions, and the freezing industry is of comparatively recent origin, the future possibilities of freezing are most promising.

In the commercial freezing of foods the Frosted Foods Sales Corporation, a subsidiary of General Foods, leads the list at present with approximately 40 items, again not counting the various cuts of meat as separate items, but listing beef as one item, lamb as another, pork as a third, etc. These Birdseye Frosted Foods, named after Clarence Birdseye, inventor of the freezing process used, are being sold at present in about 300 stores in the New England states, and in New York, New Jersey, Pennsylvania, and Maryland. It is expected by the end of the year, about 800 stores will handle them. The sale of these products has also begun on the Pacific Coast.

In the various other parts of the country frozen foods are being sold. The berry packers of the Northwest annually freeze 50,000,000 pounds of berries, principally strawberries, blackberries, and raspberries. The great part of these are frozen in barrels and sold to the pie-baking and similar trades, but in the last few years, approximately 1,600,000 pounds have been frozen in one-pound containers and sold through retail stores.

In other localities the sale of frozen fruits, vegetables, fish and meats is progressing favorably. H. C. Hemmingway & Company is freezing peas, corn, spinach, and cherries, which are being sold at retail in various cities, and are finding ready acceptance in which is known as the institutional trade, consisting of hotels, restaurants, clubs, etc. An interesting sales experiment is being carried on in Albuquerque, New Mexico, by the Albuquerque Ice Company, both on its own wagon routes and through 40 or 50 retail stores. It is selling frozen shrimp, orange juice, tomato juice, cantaloupe juice, cider and grape fruit juice, as well as frozen oysters and fish. Frozen berries packed by the Michigan Fruit Growers Union in small containers are finding a market as far away as Texas. In all parts of the South the interest in the possibilities of frozen foods seems keen, and along the Gulf Coast there are a number of small plants which are freezing fish products of various kinds.

Its ability to maintain flavor is one of the chief reasons why freezing is meeting with success as a method of preservation. So far as possible, products are frozen at the moment when their flavor is best, whether it be immediately after picking, as in the case of most fruits and vegetables, or some time after killing, as is the case with meats. When defrosted, these products still have the flavor which characterizes them when they were frozen and it is because of this char-

COLORING OF MATURE CITRUS FRUIT WITH ETHYLENE GAS

(Continued from page 6.)

ing and the end of the Florida shipping season, temperature and humidity must be manipulated somewhat differently than during cold weather. At times both are troublesomely high, and it is not easy to get them down, but usually the temperature is somewhat too high and the humidity very low. Under such weather conditions the water spray is ideal for building up humidity. No trouble should be experienced in building up humidity to the desired point within an hour or two if there is a fair water pressure (ordinary city pressure.) The higher the pressure the more fog-like will be the spray and the quicker the humidity can be built up.

The difference between the temperature of the incoming fruit and the temperature of the air in the coloring room is greater in cold than in warm weather, but it is always a matter of importance. During warm weather the fruit comes into the coloring room near the temperature of the room. Little if any extra heat is needed and at times there is also little or no need of added humidity except possibly during the first few hours of coloring. Most of the time, however, added humidity is needed, especially if an adequate supply of fresh air is being introduced. Hence, there is only slight possibility of the fruit becoming damp, and no particular reason for alarm when the relative humidity rises to 94 per cent or slightly above. Natural weather temperatures running above 90° F. at this time are not seriously objectionable, since the fine spray of water can be used to regulate temperature and humidity within the room. The high humidity protects the fruit from the withering effect of the high temperature. The only danger involved is that conditions may be created which are more favorable to the growth of stem-end rot fungi.

An effort should be made not to let the fruit temperature become too high at any time. A temporarily excessive air temperature can be lowered in a few minutes if the fruit has not become overheated, but cooling the fruit when it has become too hot is a slow process. If the fruit temperature showe a tendency to rise too high despite precautions or because of the lack of them, the follow-

(Continued on page 34.)

THE GROWERS' OWN PAGE
(Continued from page 7.)

Exhibit, Century of Progress, Headquarters, DeLand, Florida.

We at some time hope that you shall be our guest at the grove and can over take various phases of delightful activities such as are distributed over our botanic garden, our citrus laboratory of 20 acres and our five hundred odd acres of summer maturing oranges.

Extend our happiest regards to the entire official family and remember we are always thankful for any suggestions, comments and data received from you.

Cordially yours,
FLAMINGO GROVES INC.
C. P. Hammerstein, Vice President.
CPH: EF

EARLY BBEARING GRAPEFRUIT

Rancho-Glen-Haven.
Route 1
New Port Richey, Florida
Sept. 22, 1932.

My dear Mr. Frisbie,

I have just been reading in the September Industry some remarks by the Impressionist about the Hurry-up Grape Fruit produced at the General Electric Laboratories at Schenectady, New York; the seeds planted as an experiment being Grape Fruit seed. The seeds having been treated with X rays.

The idea seems to be that the X-rays caused two of the seeds to bloom in some three months time from planting. This seems to be one of the seven wonders going the rounds of the Press.

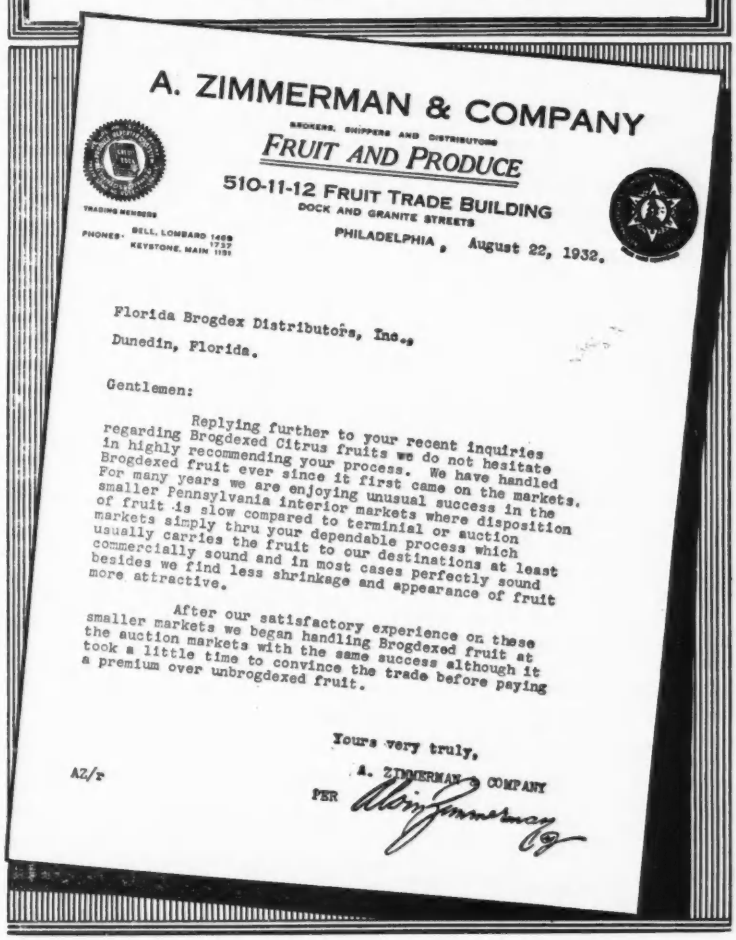
As I have noted it before, I just wish to say, the X-ray had nothing to do with the little seedling blooming. Some forty years ago I, and some of my neighbors, planted a quantity of Grape Fruit seed in the usual way to get seedlings for stock to bud on. I don't think the X-rays were known then, so we depended on the sun's rays to sprout the seed and bring forth the seedling trees. When the seedlings were from four to six inches high, here and there along the rows was one plant with a full developed bloom, both of my own and my neighbors, as well. So you see the X-rays had nothing to do with causing the freak bloom. Absolutely nothing, neither did they at Schnectady.

Sincerely,
The Old Rancher.
B. M. Hampton.

Why should farmers feed corn weevils? Fumigate with carbon bisulphide, 1 pound to 100 cubic feet of tightly closed bin space.

Building Interior Markets

Here is a prominent Philadelphia house that has built up a remarkably large trade with interior markets by the use of Brogdexed fruit. Its better keeping qualities gives more time for slower movement without danger of excessive shrinkage losses.



A. ZIMMERMAN & COMPANY
BROKERS, SHIPPERS AND DISTRIBUTORS
FRUIT AND PRODUCE
510-11-12 FRUIT TRADE BUILDING
DOCK AND GRANITE STREETS
TRADING MEMBERS
PHONES: BELL, LOMBARD 1468 1737 KEYSTONE, MAIN 1191
PHILADELPHIA, August 22, 1932.

Florida Brogdex Distributors, Inc.,
Dunedin, Florida.

Gentlemen:

Replying further to your recent inquiries regarding Brogdexed Citrus fruits we do not hesitate in highly recommending your process. We have handled Brogdexed fruit ever since it first came on the markets. For many years we are enjoying unusual success in the smaller Pennsylvania interior markets where disposition of fruit is slow compared to terminial or auction markets simply thru your dependable process which usually carries the fruit to our destinations at least commercially sound and in most cases perfectly sound besides we find less shrinkage and appearance of fruit more attractive.

After our satisfactory experience on these smaller markets we began handling Brogdexed fruit at the auction markets with the same success although it took a little time to convince the trade before paying a premium over unbrogdexed fruit.

Yours very truly,
A. ZIMMERMAN & COMPANY
PER
AZ/r

Many other big operators are having "unusual success" in building a satisfactory and profitable trade with interior markets by using Brogdexed fruits. You will get more money every time if your fruit is Brogdexed—the Zimmerman preference is typical of the market everywhere.

FLORIDA BROGDEX DISTRIBUTORS

B. C. SKINNER, *Pres.* DUNEDIN, FLORIDA

IMPRESSIONS

(Continued from page 9)

Press bureau to which important items may be turned over to assure a general accuracy in the Florida newspaper press.

At Lake Garfield outside Bartow the real pioneer citrus crate manufacturer of Florida recently passed away, E. T. Roux Sr. who at the ripe age of 94 died there at the home of E. T. Roux Jr. well known figure in our crate world. Born in Fernandina he was truly an old-line Floridian. It is interesting to meditate for a moment upon the developments and changes which passed under his observation here in Florida. And to think that quite frequently our newspapers speak of decedents of a mere fifty or sixty years as "pioneers".

We read with considerable comfort of the elevation of Walter Bennett, long the Weather Bureau shark at Tampa, to the Jacksonville office, the chief office in the state. In his studies of "freezes" and hurricanes in Florida Mr. Bennett is, in our humble opinion the one best qualified man in the Weather Bureau to render service to our state; and his cooperation with the citrus and truck interests and his untiring labors in their behalf have for years won him the high regard of the leaders of these industries.

And that reminds us that a lot of the stuff printed in Florida newspapers anent hurricanes ought to run under the heading of Important If True. Just before we started to write these lines we had been poring over the hurricane charts of the Hydrographic Office trying to reconcile some just published newspaper reports of a then current Caribbean disturbance. And they just simply did not make sense. It was much as if they had published an item, say concerning an escaped convict, to the effect that when last seen he was in Orlando heading northwestward at ten miles per hour and probably due to be in the vicinity of Miami in about four hours.

The loss of the Porto Rican grapefruit crop by the hurricane of September 26-27 promises to be of high economic importance to Florida grapefruit growers. The vagaries of Nature always supply material for potential thrills to growers of any crop.

Upon the shore of Lake Killarney in Winter Park is a sort of Blue Goose colony. C. N. (Pinky) Williams of the AFG lives there with his family, incidentally maintaining one of the finest free (for his friends) bathing beaches that we know of, right back of his house. Next time you are coming to see Pinky out of office hours bring your bathing suit. On the next property live Allan Wilson and Stacey White, two young bachelors of the AFG sales department; and that is getting toward the point of this.

Persons living together and working together for a long time develop often a remarkable coincidence of action and reaction. It has remained for Allan Wilson and Stacey White to develop, as a sort of relaxation from their very serious job of selling oranges and grapefruit, the most remarkable "brother act" we ever have encountered in a long and extremely truthful career. Both are expert riflemen. We have long fancied ourself as a rifle shot, but after watching them we are willing to move over into a rear seat. We saw this from Pinky's living room window the other evening, while waiting for Mr. and Mrs. Williams to return from an auto ride. If we hadn't seen it, we couldn't have believed it; but if you are skeptcial we are sure they will put the act on at any time for your edification.

White emerged from the house carrying a rifle. Then came Wilson also carrying a rifle, and a Negro carrying a pail, evidently full judged by its apparent weight. The Negro set down the pail in the middle of the yard. Wilson and White took their places back to back with their heels against the pail, and their rifles held at "present arms." Counting aloud they each walked twenty-five paces away from the other. Crying "about face," they came to attention facing each other. Then, while we sat immovable with horror with visions of possible "girl trouble" racing through our mind, they slowly leveled the rifles directly at each other, and began again to count aloud. At the count of ten both rifles exploded with a single report. We tore loose from the grip of horror and raced over to the Wilson-White lawn. No recumbent bodies there. Instead, the two handsome wretches stood smiling with rifles at rest. The Negro was fishing in the pail of water. Triumphant and grinning he fished up a big slug of misshapen lead. The trick, as was explained after we had quieted our heart palpitation, is for each to shoot directly into the muzzle of the other's gun. With accurate aim and timing the bullets meet head-on in the center of the intervening space, and falling are caught in the pail of water.

It is Some accurate shooting, and Some brother act. We have hesitated to write about it. Scoffing unbelievers might damage our reputation for painstaking veracity. Hence we say, go see it done for yourself. Or failing that, if it be not convenient, drop us a line and we will send you as proof a nice piece of lead.

Some time ago we pointed out that freight traffic upon the St. Johns River in the last couple of years has reached a peak in the long, long history of navigation upon that stream. Now comes further addition. Chase & Co., Sanford, whose fertilizer plant there has had a somewhat remarkable growth since first it was established to furnish fertilizers for use upon their own properties, now are establishing a barge line of their own on the river. Primarily it will be used to transport raw materials to this plant, but incidentally it doubtless will also handle fruits and vegetables northbound during the shipping season.

And Chester Fosgate takes to the country. A nice office building has been completed adjacent to the big, modern Fosgate packing house at Forest City, and the main office at Orlando soon will be a thing of the past. It is only about twenty minutes ride to Orlando, and besides Forest City is just about in the center of the greatest number of good golf courses in that part of the state.

We dislike to see too many figures made public concerning the profits in growing oranges and grapefruit here. Improper interpretation and use of such figures tends to stimulate overplanting and overcapitalization. But it was comforting never the less to run over the figures for 1931 recently accumulated by County Agent K. C. Moore of Orange County. His figures from 46 properties keeping accurate and complete records probably establish that a well managed Florida citrus grove was the most profitable sort of agricultural or horticultural property in these United States last year. As Einstein might say, that is a relative proposition.

It's cheaper to plant Austrian peas and vetch in October than to buy fertilizer next spring.

To control flea-hoppers on celery use some of the pyrethrum sprays.

CITRUS ADVERTISING ASSURED

Announcement is made by the Florida Citrus Growers Clearing House Association that it has completed arrangements to participate in the nationwide advertising campaign for Florida citrus fruit. Since similar announcement was made some time ago by the Florida Citrus Exchange, it would appear that the advertising campaign is now assured. Independent shippers not affiliated with either of the major organizations named above are expected to join in the program.

The unanimity with which members of the Florida Citrus Growers Clearing House Association are supporting the proposed advertising campaign, is due in large measure to the excellent work done by James C. Morton of Auburndale, who has been actively engaged in campaigning for the movement for the past several weeks.

Naturally, The Citrus Industry is pleased at the outcome of this project, since it has been a consistent advocate of such a joint advertising campaign since the publication was first established, thirteen years ago. It anticipates much benefit from the campaign and trusts that it may be inaugurated without delay.

Careful grove work and judicious advertising will do more for the citrus industry than all the tariffs in the world.

The VALUE OF A FERTILIZER

is determined by the number of pounds of plant food each ton contains.

NUMEROUS experiments with Ammo-Phos High-Analysis Fertilizers have proved their economy and crop-producing ability. Hundreds of citrus growers throughout Florida used Ammo-Phos High-Analysis Fertilizers last year. *The results speak for themselves!*

Ammo-Phos, which supplies ammonia and phosphoric acid, and is suitable for both citrus and vegetables, is available in two analyses:

13-48-0 20-20-0

In addition, we manufacture our own Ammo-Phos High-Analysis Complete Fertilizers in the following analysis for citrus trees:

14.5-12-16

For further information and specific recommendations call at one of our stores, or write Mr. J. B. Berry, Winter Haven, Florida.

THE KILGORE SEED CO., Plant City, Florida

Kilgore Stores located at Plant City, Belle Glade, Gainesville, Homestead, Leesburg, Miami, Pahokee, Palmetto, Pompano, Sanford, Vero Beach, Wauchula

AMMO-PHOS High-Analysis Fertilizers Contain More Than 30% Plant Food

A FREE BOOK EVERY GROWER AND SHIPPER SHOULD HAVE

CONTAINS complete information on ETHYLENE—the magic gas which hastens ripening of matured fruits. Learn how to profit with it. Ethylene increases profits, reduces loss, saves time. Write for your copy of "Ethylene for Coloring Matured Fruits and Vegetables" *today*.

CARBIDE AND CARBON CHEMICALS CORPORATION

30 East 42nd Street, New York City
1310 Santee Street, Los Angeles
114 Sansome Street, San Francisco, California

Warehouses in Los Angeles, Tampa, Jacksonville, and other principal cities

Units of Union Carbide UCC ***and Carbon Corporation***

The Best Market In Florida

Is made up of the citrus growers of this state.

The logical medium through which to appeal to this group is

The Citrus Industry

because it is addressed solely to this group of readers.

A lot of advertisers have already learned this.

—A trial will convince you of the wisdom of this course.

COLORING OF MATURE CITRUS FRUIT WITH ETHYLENE GAS

(Continued from page 30.)

ing suggestions will be helpful:

1. Increase the intake of fresh air, using the air vents opening into the air mixing chamber.
2. Ventilate the space above the rooms.
3. If necessary, open doors to air the room. This should be done at night when air temperatures are lowest.
4. With rooms equipped with a cold water spray in the air-conditioning chamber it has been found that a good spray is effective in reducing the room air temperature when there is considerable difference between the wet and dry bulb temperatures of outside air.
5. Where rooms are equipped with powerful two-speed fans, the high speed should be used during hot weather unless or until desirable fruit temperatures have been established; the low speed may then be employed.
6. When the fan is run at low speed, the fresh air opening should be increased proportionately.
7. If at any time the fruit shows signs of wilting the fine spray or steam jet should be opened to build up the humidity.

(Concluded next month.)

LIFE HISTORY AND CONTROL STUDIES FOR MELANOSE AND SCAB OF CITRUS

(Continued from page 27.)

tion with our spraying experiments we are also making scale counts from the various plots at different times during the season, to find the effect of the use of the different fungicides on the increase or decrease in the scale population.

The season is not far enough advanced to give you the final results of any of these spraying experiments at the present time.

CLASSIFIED Advertisments

The rate for advertisements of this nature is only five cents per word for each insertion. You may count the number of words you have, multiply it by five, and you will have the cost of the advertisement for one insertion. Multiply this by the total number of insertions desired and you will have the total cost. This rate is so low that we cannot charge classified accounts, and would, therefore, appreciate a remittance with order. No advertisement accepted for less than 50 cents.

MISCELLANEOUS

DUSTER — Niagara, Air-Cooled engine Steel truck-mounted. Nearly new. Half price. Samuel Kidder, Monticello Fla.

SEEDS—ROUGH LEMON, SOUR ORANGE, CLEOPATRA. Pure, fresh, good germination. Also seedlings lineout size. De Soto Nurseries, DeSoto City, Fla.

FANCY ABAKKA pineapple plants. R. A. Saeger. Ankona, Florida.

HIGH BLOOD PRESSURE easily, inexpensively overcome, without drugs. Send address. Dr. J. B. Stokes, Mohawk, Fla.

CROTALARIA SPECTABILIS—Seed for sale. New crop, well cured, bright and clean. Price 25c per pound in 100 pound lots and over, 30c per pound in less quantities, f. o. b. Hastings, Bunnell, Lowell and San Antonio, Florida. F. M. LEONARD & COMPANY, Hastings, Florida.

SCENIC HIGHWAY NURSERIES has a large stock of early and late grapefruit and oranges. One, two and three year buds. This nursery has been operated since 1883 by G. H. Gibbons, Waverly, Fla.

RAISE PIGEONS—Profit and pleasure. Illustrated descriptive catalogue postage six cents. Vrana Farms, Box 314a, Clayton, Missouri.

ORANGE PACKERS ATTENTION — Two chemical transparent flexible orange coating processes for sale; royalty or license basis. Patent pending. Dr. C. V. Berry, 251 West 111th Street, New York City.

PUREBRED PULLETS FOR SALE—White Leghorns and Anconas ready to ship. Barred Rocks and R. I. Reds shortly. Several hundred yearling White Leghorn hens now laying 70%. Write or wire for prices. C. A. Norman, Dr. 1440, Knoxville, Tenn.

LAREDO SOY BEANS, considered free f. nematode, excellent for hay and soil improvement. Write the Baldwin County Seed Growers Association, Loxley, Alabama, for prices.

CABBAGE, Onion and Collard plants. All varieties now ready. Postpaid 500 for $1.00; 1000 $1.50. Expressed $1.00 per 1,000; 5,000 and over 75c per 1,000. Satisfaction guaranteed. P. D. Fulwood, Tifton, Ga.

NEW COMMERCIAL lemon for Florida, the Perrine; proven. All residents need yard trees, keeping Florida money at home. Booking orders for budded stock for Winter delivery. DeSoto Nurseries, DeSoto City, Fla.

WANTED—To hear from owner of land for sale. O. Hawley, Baldwin, Wis.

SATSUMA BUDWOOD from Bearing Trees. Hills Fruit Farm, Panama City, Fla.

SEED—Rough lemon, sour orange, cleopatra. New crop from type true parent trees. Also thrifty seedlings. DeSoto Nurseries, De Soto City, Florida.

WANTED—To hear from owner having good farm for sale. Cash price, particulars, John Black, Chippewa Falls, Wisconsin.

SEND no money. C. O. D. Cabbage, Onion and Collard plants. All varieties 500—60c; 1,000—95c; 5,000 and over 75c per 1,000. Standard Plant Co., Tifton, Ga.

C. O. D. Frostproof cabbage, onion and collard plants. All varieties 500—60c; 1,000—95c. Farmers Plant Co., Tifton, Ga.

BUDDED trees new Florida commercial lemon, proven, thin skinned, juicy, scab immune. Also rough lemon, sour orange and Cleopatra seed and liningout seedlings. DeSoto Nurseries, DeSoto City, Fla.

HOTEL HILLSBORO

(Tampa's Largest All Year Hotel)

INVITES YOU TO USE ITS FACILITIES

"TOP O' THE TOWN" Dining Room
COFFEE SHOP
CAFETERIA

Large Rooms
Single With Bath
$2 to $5
Double With Bath
$4 to $7

L. B. SKINNER, Prop.
C. J. JACKSON, Mgr.

"JACKSONVILLE'S LEADING HOTEL"

THE SEMINOLE

CHAS. B. GRINER, Manager

Caters especially to the fathers and mothers, sons and daughters of the South. YOUR hotel—and THE hotel for your family. — Absolutely Fireproof and Modern.

RATES, $1.50 UP. FREE GARAGE